Fire Weather Annual Report

Southeast Idaho

2013

Pocatello Fire Weather Office
Pocatello, Idaho

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service

2013 Fire Weather Annual Report
National Weather Service – Pocatello Fire Weather Office

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Pocatello, ID 83204

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1. Introduction:

The National Weather Service, Weather Forecast Office at Pocatello, Idaho has Fire Weather Forecast responsibility for portions of Idaho serviced by the Central, Eastern and Southern Interagency Dispatch Centers (Figure 1). The Pocatello Fire Weather Office produces this Annual Fire Weather Report. Previous reports are maintained up to five years.

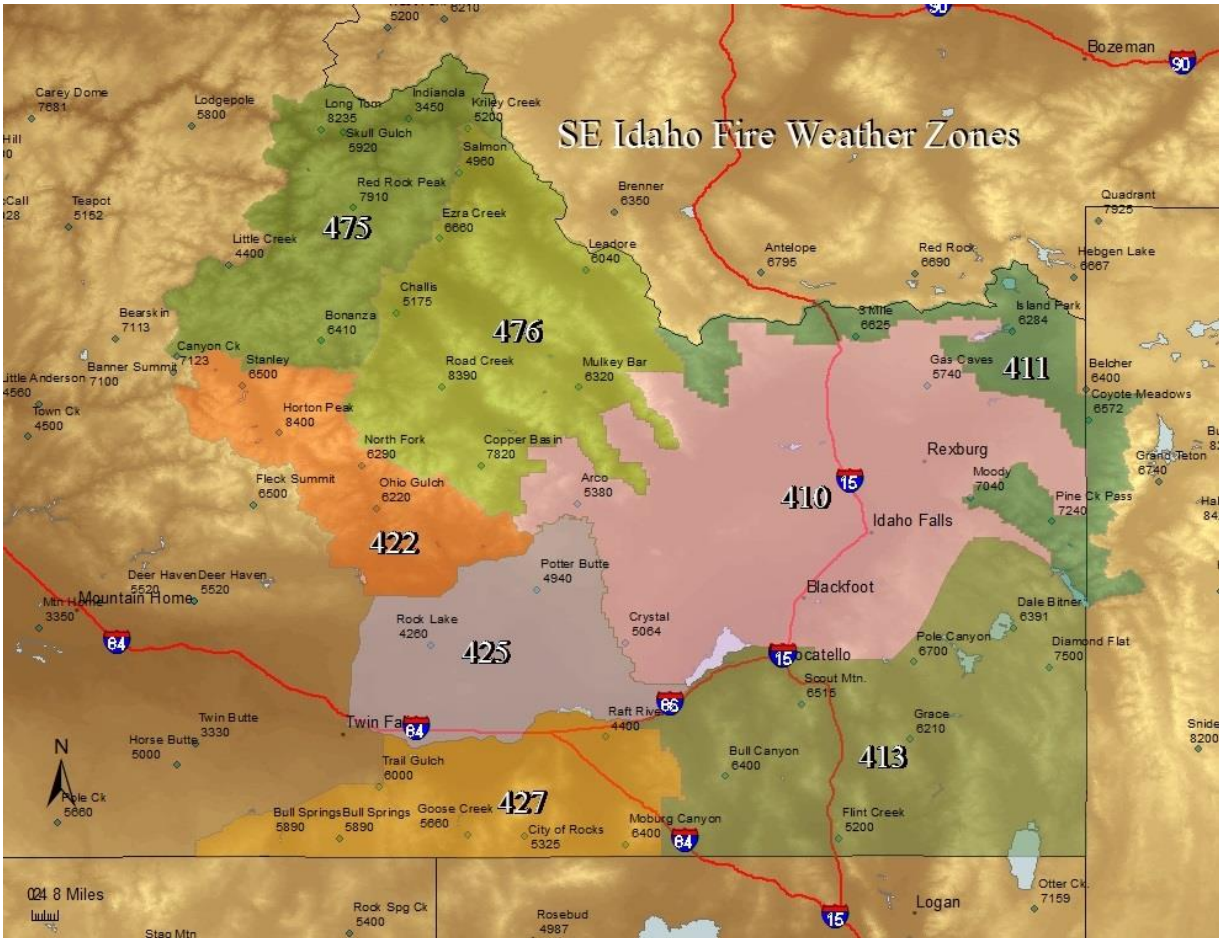

Figure 1 WFO Pocatello Fire Weather area of responsibility (solid color areas).

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2. **Overview of the fire season:**

The El Niño/Southern Oscillation Index (ENSO) has remained in a neutral state since the summer of 2012, this does not necessarily mean that rain fall in the Pacific Northwest will be near "Normal" over the course of a year. In a neutral year, strong upper level winds (the Jet Stream) are generally located further off shore, in the Central and Western Pacific Ocean (Figure 2.1). This often results in either a splitting flow pattern with storm systems moving to the north or south of Idaho or even a blocking condition where storm systems show less development or fail to reach this area at all. There were very few storm systems affecting southeastern Idaho this winter and spring that were "well developed storms", supported by strong winds aloft.

The El Niño/Southern Oscillation (ENSO) cycle occurs over a two to seven year period and refers to conditions of sea surface temperatures in the tropical Pacific Ocean. Researchers have identified other cyclic patterns besides ENSO around the globe that may affect long term weather patterns. Some of these cyclic patterns may span 10 or even 30 years. La Niña (colder than normal) and El Niño (warmer than normal) are terms associated with extremes in the ENSO cycle. The ENSO cycle has a strong influence on global climate patterns and is a major player in long term climate outlooks.

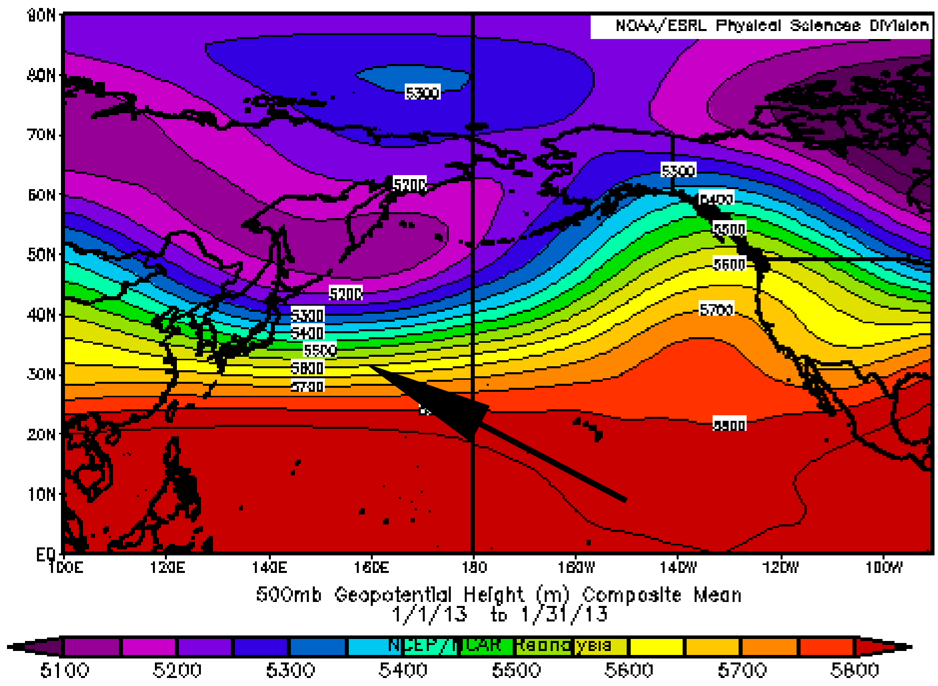

Figure 2.1 Department of Commerce, National Oceanic and Atmospheric Administration, ESRL composite reanalysis of 500 mb geopotential height pattern for January 2013. Note the strong upper level winds (jet stream winds) were displaced towards the western Pacific leaving lighter flow entering the Pacific Northwest coast.

The winter weather season from October through December 2012, got off to a great start. Several storm systems originating in the Gulf of Alaska brought widespread rain and snow to southeast Idaho (Figure 2.2a). The maritime influence of these storm systems served to moderate temperatures and resulted in mostly rain below 6500 feet of elevation. For the higher elevations, snow packs soared to greater than 150 percent of normal in the Big Lost and Little Wood Basins (Figure 2.2b). Then as if someone had made a New Year's resolution to spend more time in the desert, southeastern Idaho entered a period of 5 consecutive months of below normal precipitation (Figure 2.3 a and b). Colder than normal temperatures in January and again in April, helped to preserve the snow packs that had already developed, but new storm systems the remainder of the winter season were weak and failed to bring significant snow to the mountains. By May 1st, the snow packs in nearly all of southeast Idaho were below normal (Figure 2.2c).

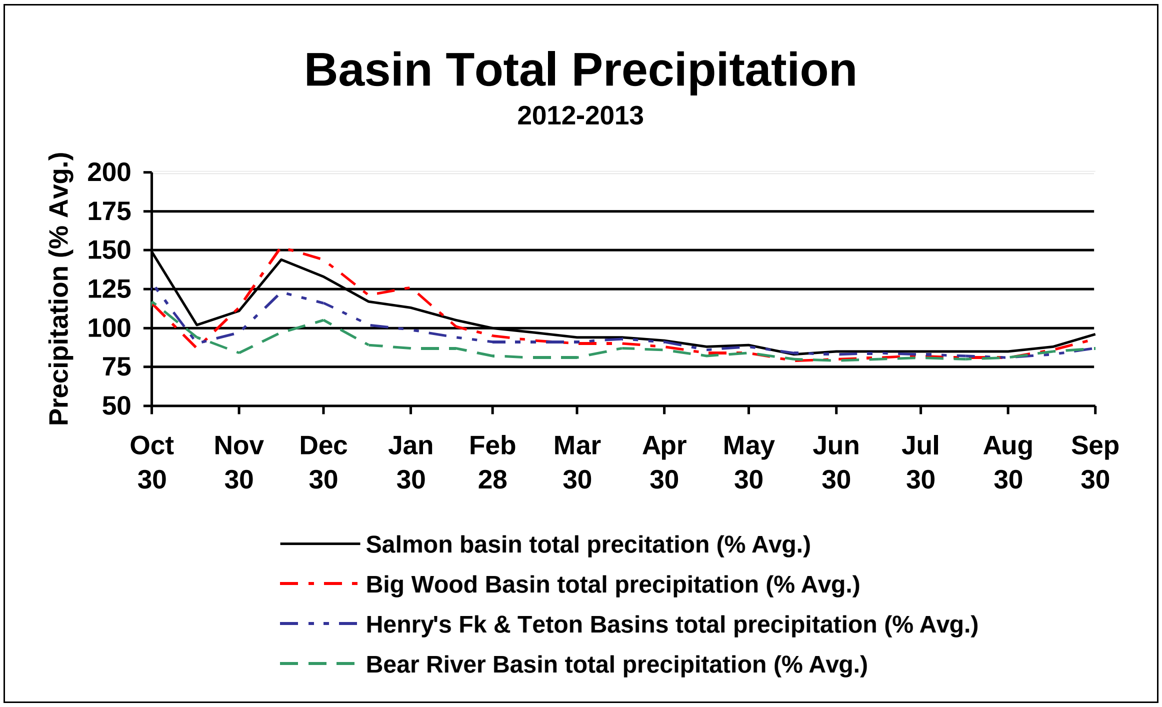

Figure 2.2a Total precipitation for select Southeast Idaho Basins expressed as a percent of average. Data source is from the USDA Natural Resources Conservation Service, National Water and Climate Center, Portland Oregon.

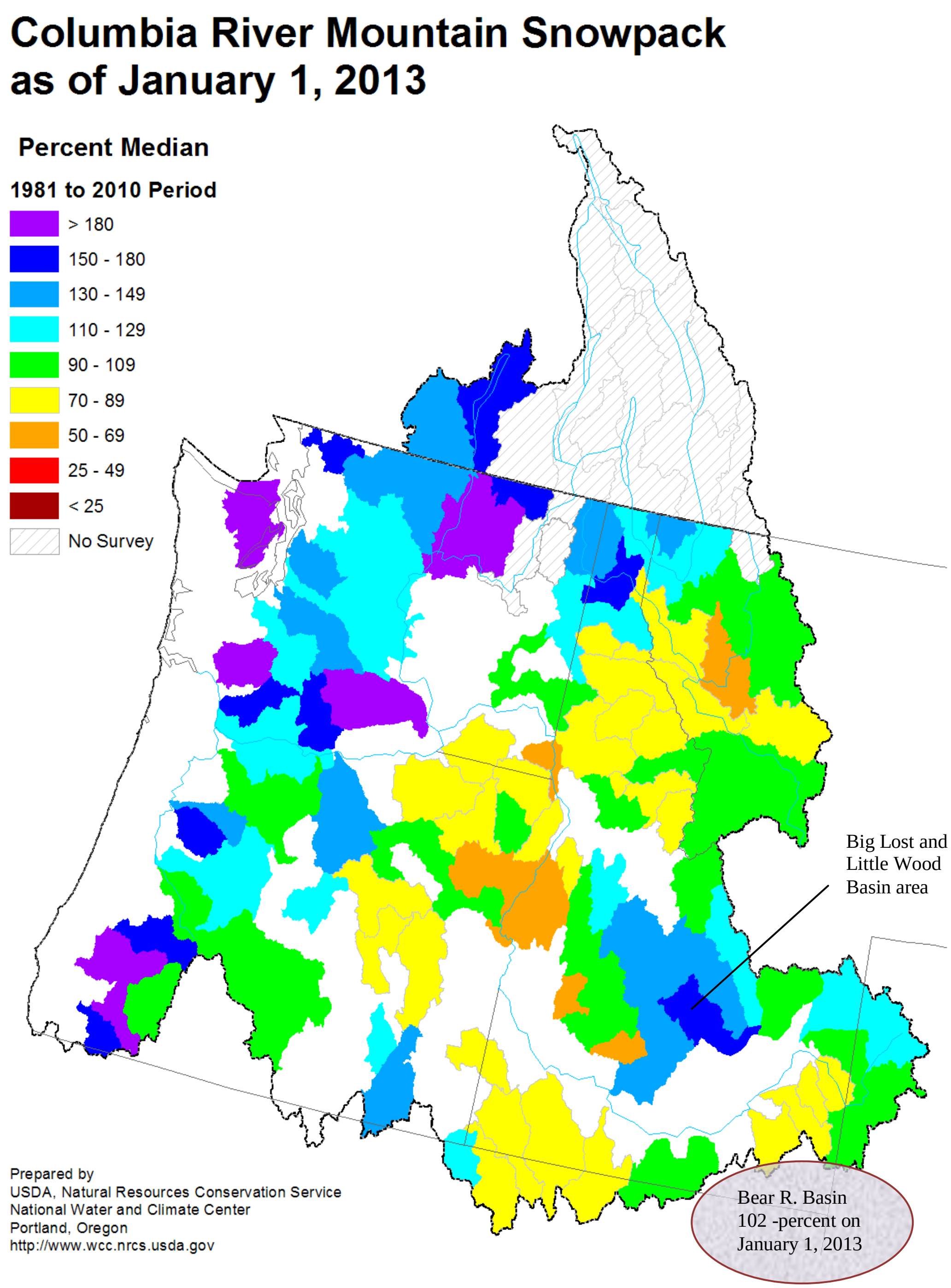

Figure 2.2b Mountain snow packs as determined from snow water equivalent. From USDA Natural Resources Conservation Service, National Water and Climate Center, Portland Oregon.

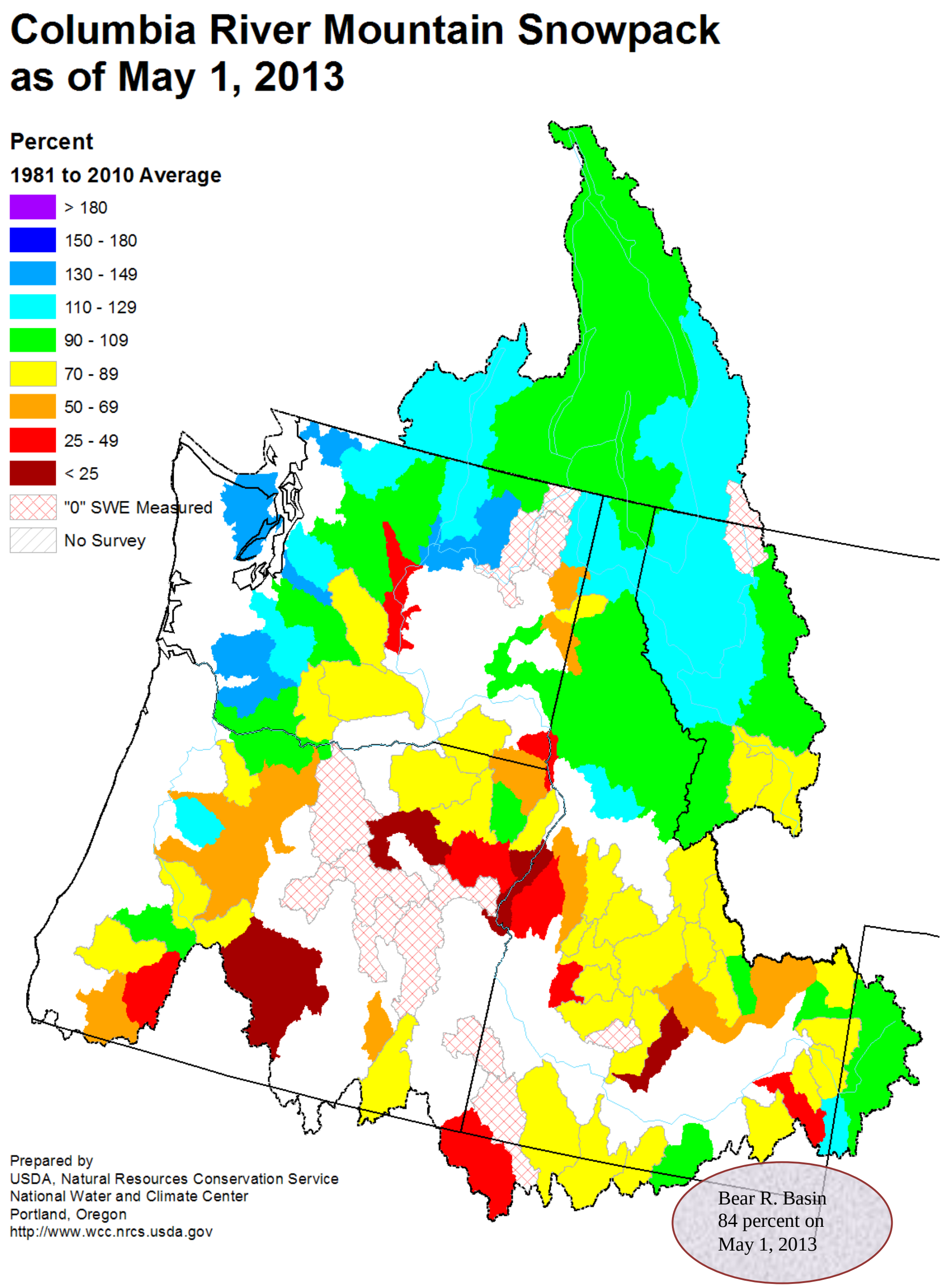

Figure 2.2c Mountain snow packs as determined from snow water equivalent. From USDA Natural Resources Conservation Service, National Water and Climate Center, Portland Oregon.

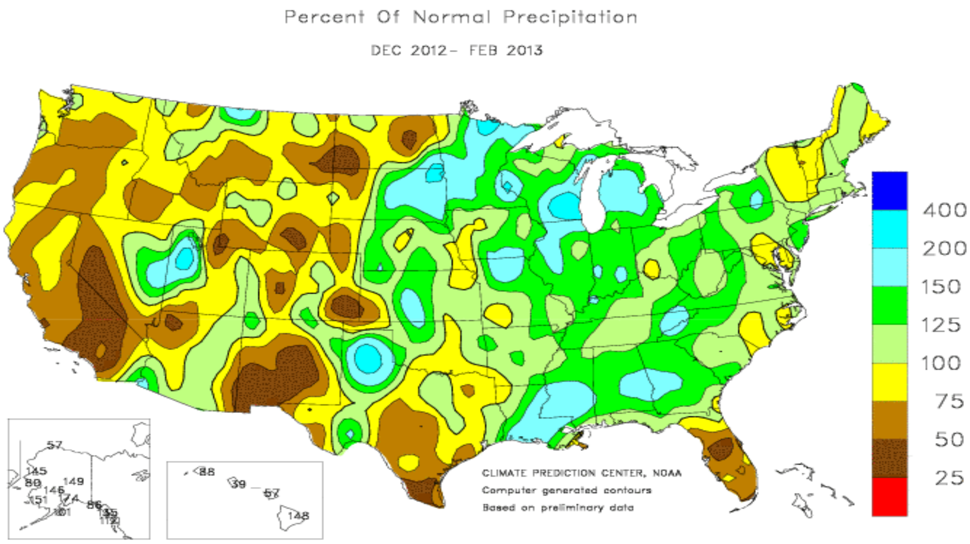

Figure 2.3a Precipitation as a percentage of normal for a 90 day period centered on January 2013, from Climate Prediction Center, National Oceanic and Atmospheric Administration.

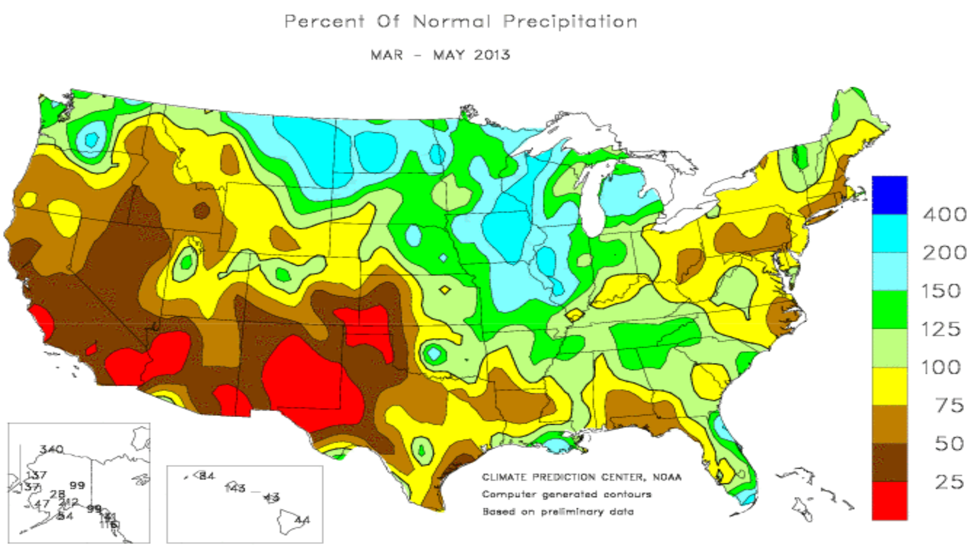

Figure 2.3b Precipitation as a percentage of normal for a 90 day period centered on April 2013, from Climate Prediction Center, National Oceanic and Atmospheric Administration.

The implication for the fire season to follow can be seen from the time evolution of the peak in snow pack and rapid loss of snow melt at Morgan Creek SNOTEL site located just off Panther Creek Road roughly 22 miles NNW of Challis, Idaho (Figure 2.4). The snow pack peaked about the last week of March, or close to average time wise. However, the below average snow water equivalent of the snow pack resulted in runoff concluding the first few days of May, almost a month early. This would suggest an early fire season like 2012, but fuel moistures from Gas Caves RAWS near Dubois suggested a slower trend (Figure 2.5).

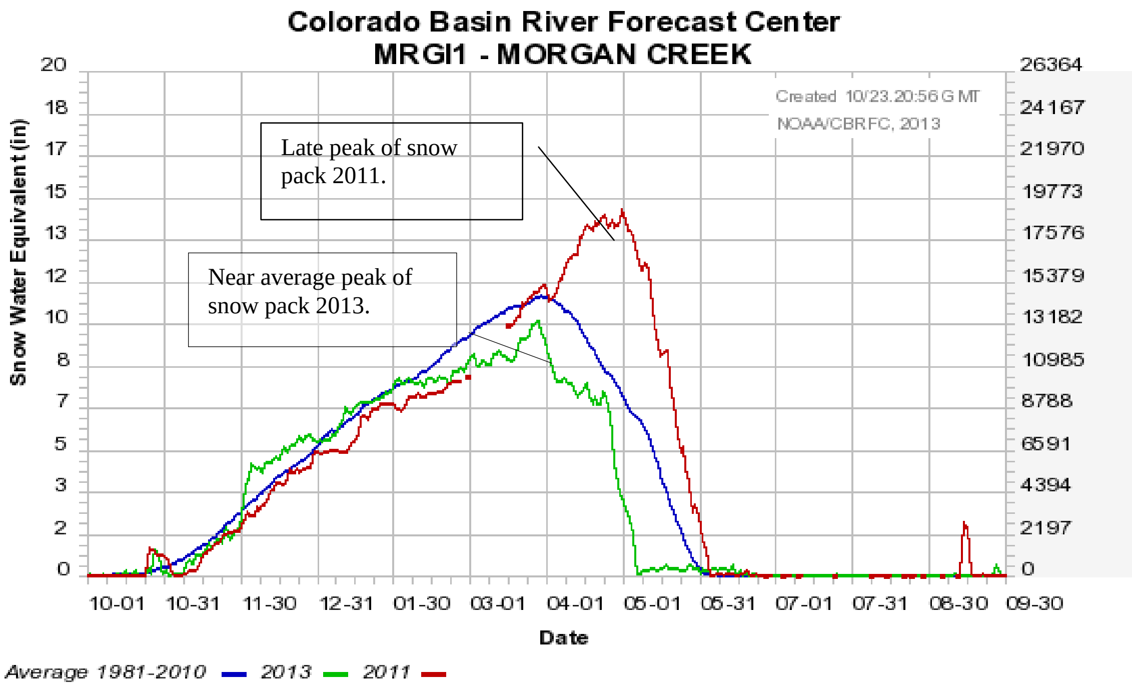

Figure 2.4 Late peaking snow packs of 2011 compared with the near average peak but lower volume of 2013; source National Weather Service, Colorado Basin River Forecast Center. Morgan Creek is a telemetered snow reporting station of the National Resource Conservation Service, located at 7600 feet elevation on Morgan Creek Road about 24 miles north of Challis, Idaho.

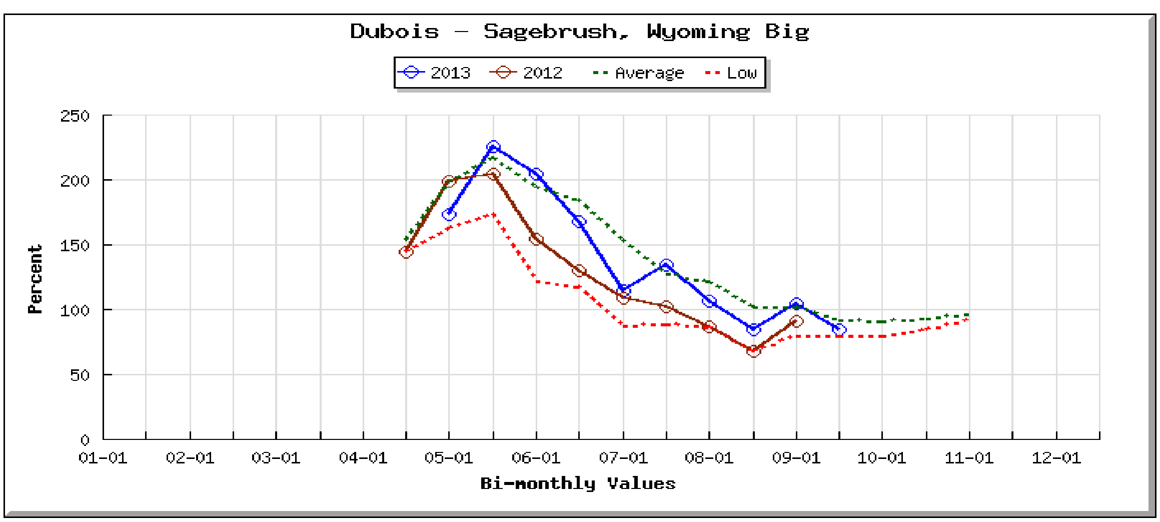

Figure 2.5 National Fuel Moisture Data Base, for Gas Caves RAWS near Dubois, Idaho.

Below normal precipitation was experienced right into the summer months. Precipitation measurements at The National Weather Service Office in Pocatello from January through July, 2013 showed a 7 month deficit of 3.64 inches when compared to normal, and for the water year ending September 30th, Pocatello was 3.18 inches below mean annual precipitation (Figure 2.6).

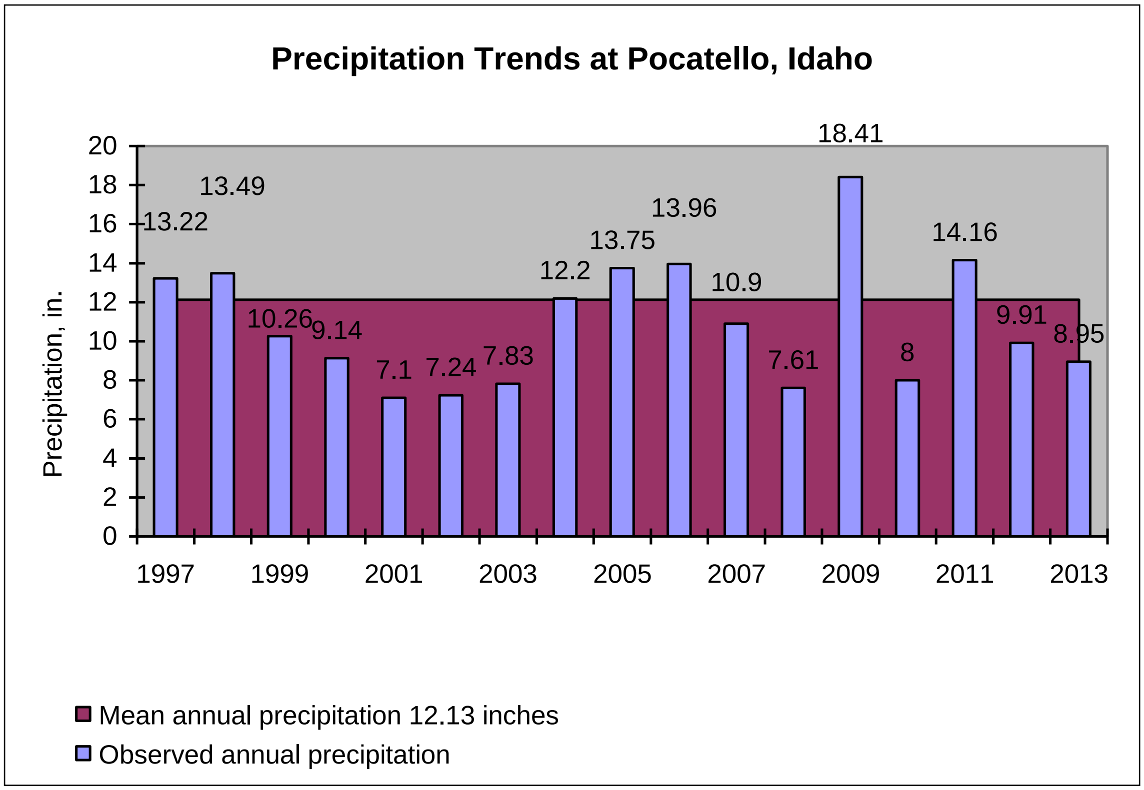

Figure 2.6 Water year (Oct. 1 to Sep. 30) observed precipitation at Pocatello, Idaho. Mean annual precipitation from National Climatic Data Center 1981-2010 monthly normals (previous 1971-2000 mean annual precipitation was 12.58 inches and for 1961-1990, 12.14 inches).

For most of the month of June, an area of low pressure persisted in the northeastern Pacific, providing west to southwest flow into Idaho. The central mountains received several rounds of rain showers that tracked towards Montana, leaving the Upper Snake Plain mostly dry. Record high temperatures were reported on several different days in June at both Idaho Falls and Pocatello. By the end of the month, strong high pressure began to develop near the four corners region; the monsoon season was almost here.

The Southwest Area Monsoon was more consistent from day to day and longer lived than in recent years; few storm systems off the Pacific interrupted the monsoon pattern through the summer. From early July through late August, nearly all of the thunderstorm events in southeastern Idaho produced less than 0.10 inch rain. About the 19th of August, monsoon moisture deepened substantially and brought higher relative humidity air into this area that would last until the gradual seasonal change to cooler temperatures by October. This change began around the 19th of August in the Bear Lake area and by the 21st of August, more humid air advanced to the Snake Plain as evidenced at Crystal

RAWS station (Figure 2.7). Thunderstorms with heavy rain were more common in September.

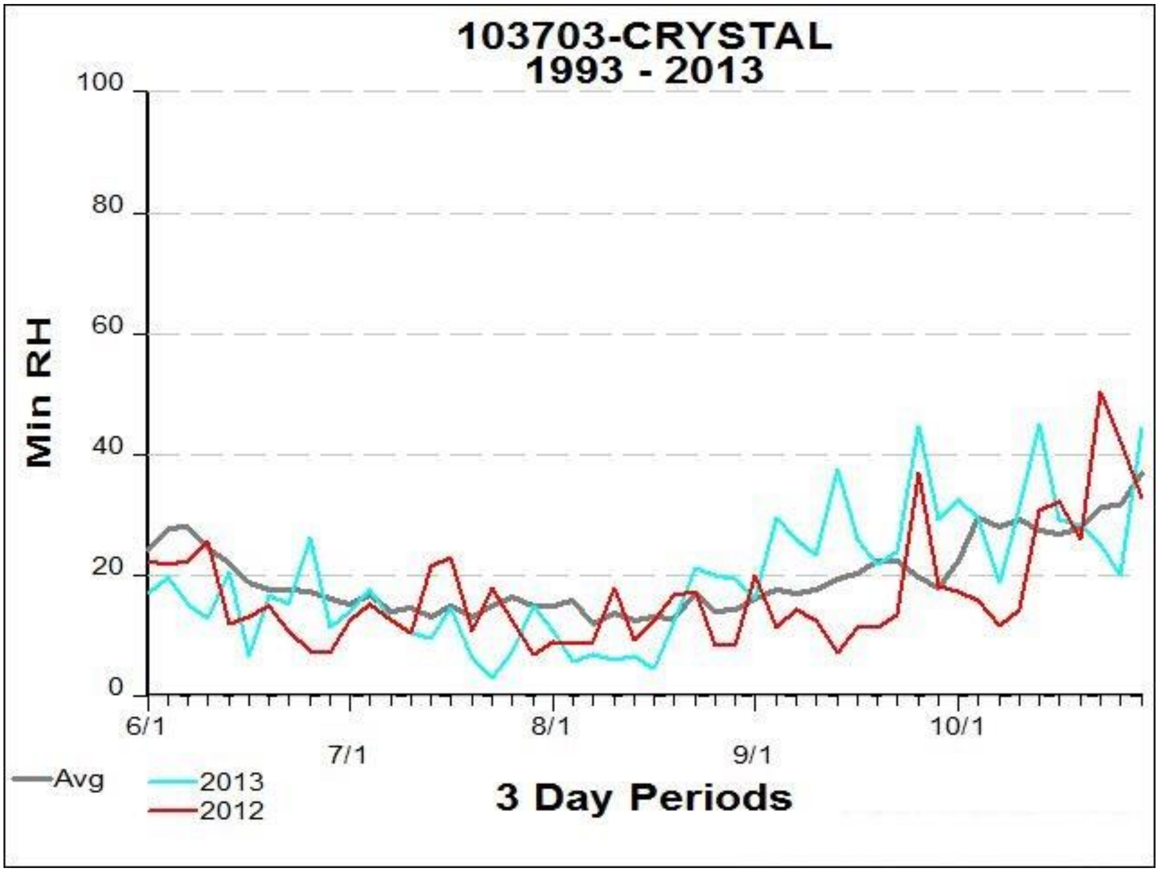

Figure 2.7 Minimum afternoon relative humidity reported at the Crystal RAWS station, located in the Upper Snake Plain about 22 miles northwest of American Falls, Idaho.

Seven months of below normal precipitation was evident in the Keetch-Byram Drought Index by the middle of June (Figure 2.8a). Conditions continued to become drier as the fire season progressed, although the presence of higher humidity and heavier rain showers late in the season no doubt provided some mitigation to the short term drought condition in southeastern Idaho (Figure 2.8b).

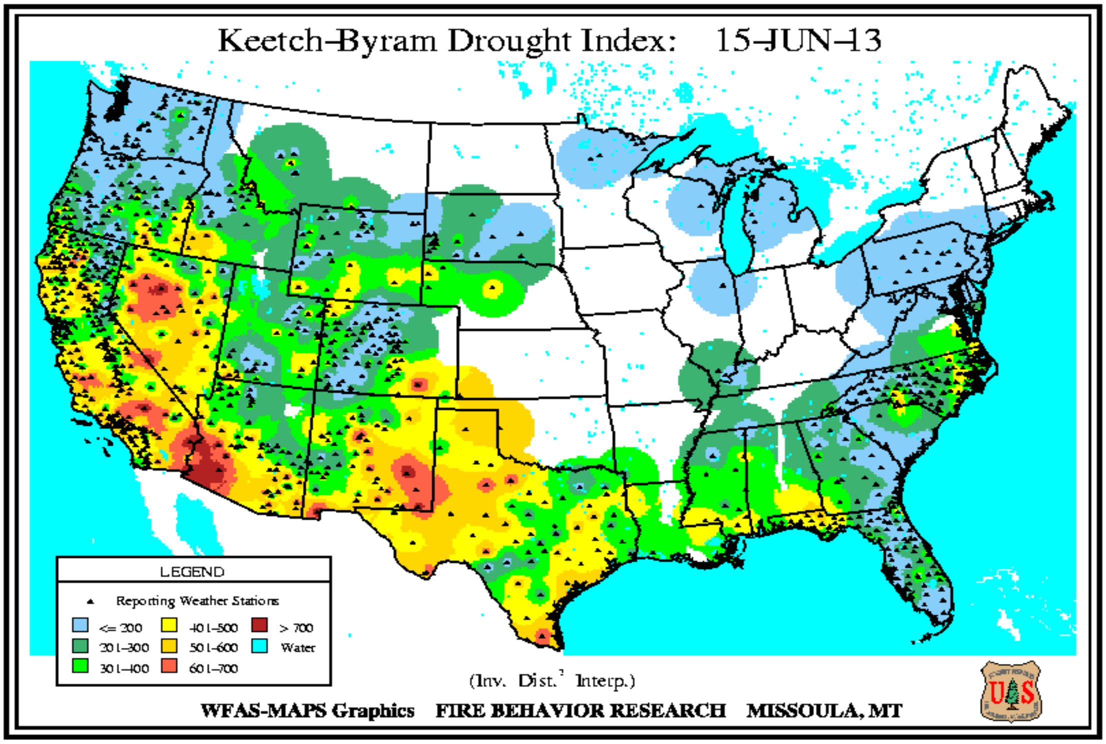

Figure 2.8(a) Keetch-Byram Drought Index reflecting more short term drought conditions, i.e. evapotransporation and near surface soil moisture. Valid June 15, 2013.

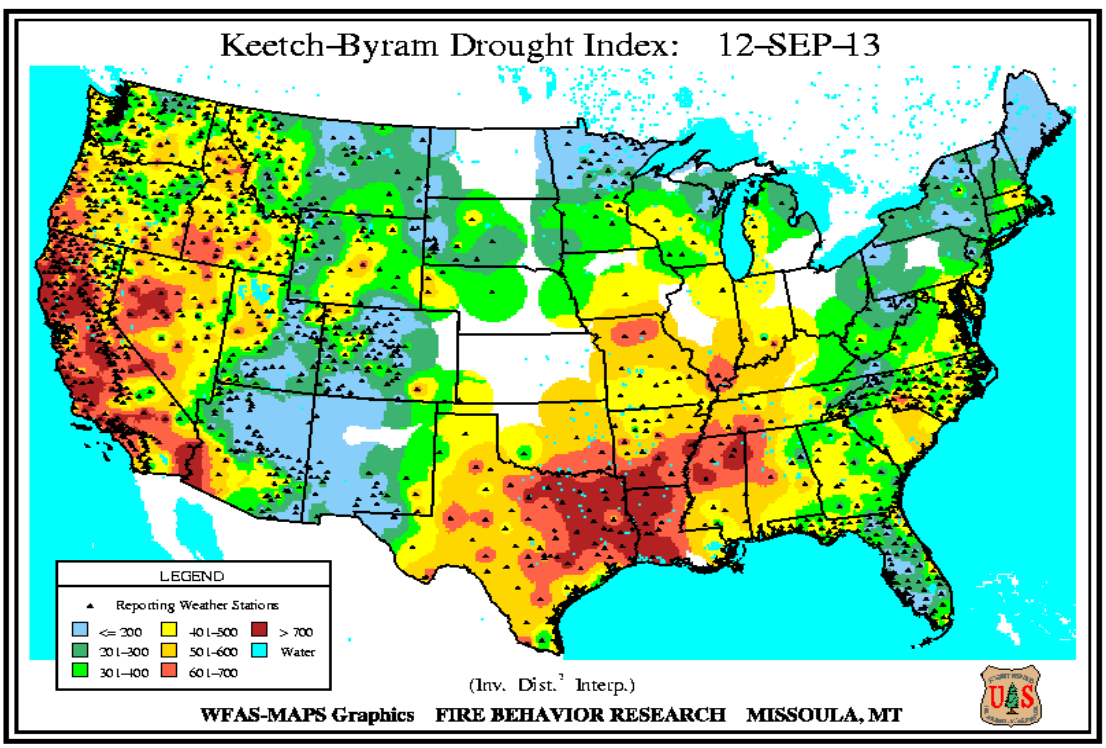

Figure 2.8(b) Keetch-Byram Drought Index reflecting more short term drought conditions, i.e. evapotransporation and near surface soil moisture. Valid September 12, 2013.

The Palmer Drought Severity Index measures more long term meteorological conditions over several months. Near the peak of fire season, the Palmer Index (Figure 2.9) shows severe, even extreme drought conditions had developed across nearly all southeast Idaho.

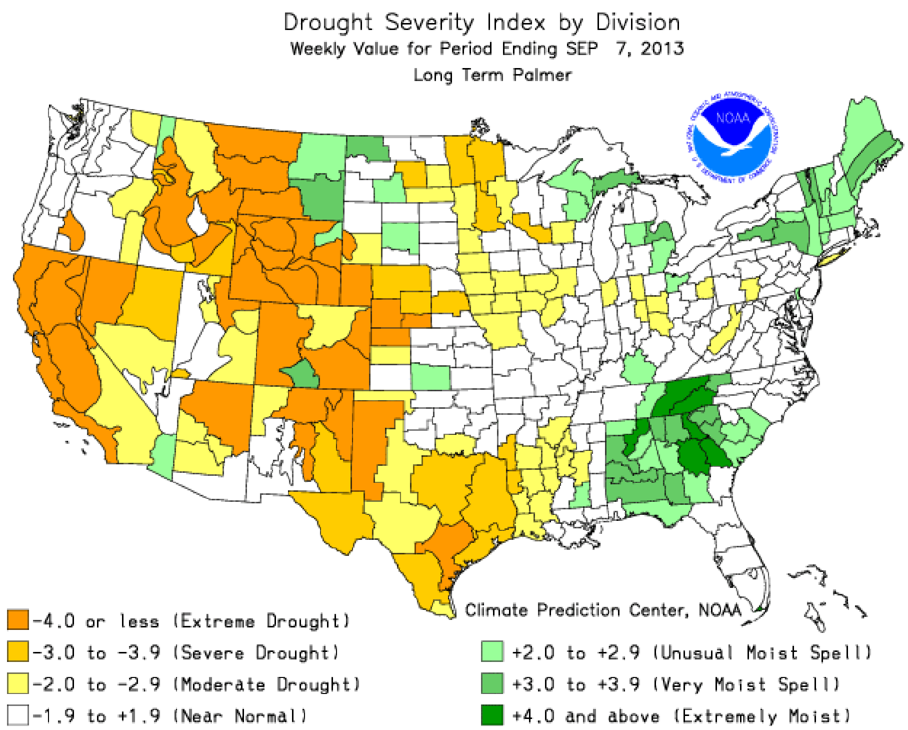

Figure 2.9 Palmer Drought Severity Index (September 2013) measuring long term meteorological conditions over many months.

3. Weather in review: October 2012 – September 2013

October 2012. For the first half of October a strong ridge of high pressure remained in the northeastern Pacific and effectively blocked moist maritime air from reaching Idaho, the upper level wind pattern remained northerly and overland through western Canada. By October 12th the blocking ridge broke down, giving way to a series of low pressure storm systems that would develop in the Gulf of Alaska and track through Idaho. The first storm system arrived October 15th to the 17th, bringing widespread rain showers to southeast Idaho, and precipitation amounts typically from .10 to .20 inches. A minor disturbance October 20th and 21st affected mainly the Salmon-Challis National Forest area. A third and more significant storm system occurred October 23rd to 26th, resulting in widespread rain and snow across the area. Precipitation from this storm system ranged from .50 to .75 inches liquid water equivalent.

November and December 2012. An active weather pattern with above normal precipitation continued through the end of the year. Notable storm systems occurred on November 9th to 11th, 14th to 15th, and November 18th to 20th. Additional storm systems occurred November 29th to December 6th, December 23rd to 25th, and December 27th to 29th. Stanley, Idaho from November 29th to December 5th reported 2.28 inches liquid equivalent of precipitation, helping to end fire activity in the area. The months of November and December were marked by above normal temperatures and elevated snow levels. The Natural Resources Conservation Service in their Idaho State Basin Outlook Report for January, 2013 noted that mostly rain fell up to 6500 feet of elevation. Precipitation amounts in the Big Lost and Little Wood Basins were up to 200 percent of normal.

January 2013. All of southeastern Idaho received less than normal precipitation; the Sawtooth National Forest area in particular received less than half of the normal precipitation for the month of January. A high pressure ridge transitioned across Idaho the first week of January, providing clear skies and colder temperatures. A low pressure disturbance crossed northern Idaho January 8th to 10th, followed by a second storm system crossing Nevada and Utah January 10th to 12th, bringing 0.1 to 0.2 inch precipitation to southeast Idaho. A very strong ridge of high pressure then developed in the eastern Pacific that would keep Idaho under cold and dry northerly winds aloft for the next 12 days. January temperatures would end up 3 to 9 degrees Fahrenheit below normal. This helped preserve the existing snow packs but did little to increase it. A low pressure trough crossed the Intermountain West January 26th and 27th providing an additional .2 to .3 inches of precipitation for much of this area.

February and March 2013. The drought continued. The flow pattern across the eastern Pacific became lighter, often splitting at times; without the presence of strong jet stream winds in the upper atmosphere, well developed storm systems were not observed. Many of the disturbances that did develop either crossed through the panhandle of Idaho or through Nevada and Arizona. The more significant periods of unsettled weather occurred February 19th to the 24th, March 6th to 8th, and March 20th to 22nd. Temperatures moderated closer to normal during this time and some of the lower elevation snow packs melted off.

April and May 2013. For the period January through May, southeast Idaho now has five consecutive months of below normal precipitation. The 2^{nd} of April, a minor disturbance passed through northern Nevada and Utah, light showers extend into the South Central Highlands of Idaho. A storm system entered the Pacific Northwest April 6^{th}, dropping sharply to northern Arizona, leaving up to 0.25 inches of precipitation in southeastern Idaho. For the remainder of April, a ridge of high pressure remained in the eastern Pacific and a broad area of low pressure was located over Canada. Minor disturbances continued to slide along and to the east of the Continental Divide with little precipitation reaching into Idaho. Near normal precipitation occurred from Island Park to Palisades Reservoir and the headwaters of the Upper Snake River; but for the remainder of southeastern Idaho, precipitation received in April and May was less than 50 percent of normal. Temperatures in May were slightly above normal for the month and several SNOTEL sites indicated the snow packs were melting out up to three weeks early.

June through about August $19^{th,}$ 2013. For the first half of June, the storm track was well north of this area, between the Idaho Panhandle and British Columbia. June 12^{th}, a Pacific cold front crossed Idaho with scattered showers and thunderstorms, some with up to .50 inches of rain. Isolated afternoon thunderstorms occurred the next few days, and then on June 25^{th} another Pacific cold front passed with some thunderstorms producing up to 0.25 inches of rain. The seasonal high pressure ridge began to build over the Great Basin the last week of June. Temperatures were above normal and the National Weather Service Office in Pocatello reported record high temperatures on June 28^{th}, 29^{th}, and 30^{th}. At Stanley, Idaho, a record high temperature of 89F was observed on July 16^{th}. Precipitation for the month of June across southeastern Idaho was, for a sixth month, below normal.

On July 5^{th} and 6^{th}, a Pacific low pressure disturbance crossed northern Idaho while the first surge of monsoon moisture advanced northward to Idaho ahead of the surface front. Thunderstorms produce a trace to 0.13 inches of rain. Isolated to widely scattered afternoon thunderstorms occurred on several days the rest of July through the first half of August. Thunderstorms on these days produced less than 0.10 inches of rain. The deeper monsoon moisture was focused across Arizona, New Mexico, and western Texas during this time period. Surface winds were breezy on July 6^{th}, 11^{th}, 13^{th}, and July 20^{th} through 22^{nd}. In August, surface winds were breezy on the 1^{st}, 2^{nd}, 8^{th}, and the 11^{th}.

Notable Wildland Fires

- Papoose Fire began July 8^{th}
- Lodgepole Fire began July 20^{th}
- Beaver Creek Fire began August 7th

August 19^{th} through September 2013. Deeper monsoon moisture advanced north into Idaho beginning around the 19^{th} of August; this deeper moisture would remain present in southeastern Idaho until a low pressure disturbance off the Pacific moved inland about the 16th of September. Also, about this time, the persistent high pressure ridge near the Four Corners area began to break down, signaling the seasonal change was under way. From August 19th onward, the observed minimum relative humidity around Bear Lake and Malad would not drop below 20 percent. These higher humidity levels spread to nearly all of the Middle and Upper Snake Plain by August 23rd. Thunderstorms, with heavy rains, resulted in debris flows 3 miles west of Hailey on September 3rd; and flash flooding near Pocatello, Burley, Idaho Falls, and near Magic Mountain Ski area. On September 4th, flash flooding or heavy rain (half to one inch or greater) was reported near Shoshone, Chubbuck, Hagerman, Filer, and Buhl. Additional incidents of heavy rain or flash flooding occurred September 5th, 8th, 12th, and 13th. These rain events were not widespread on any one day and no single event would suggest a season ending event; although the cumulative effects of rain and persistently higher humidity that last into the cooler temperatures of October arrived, probably helped.

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4. Precipitation and Dry 1000 hour fuels by zone:

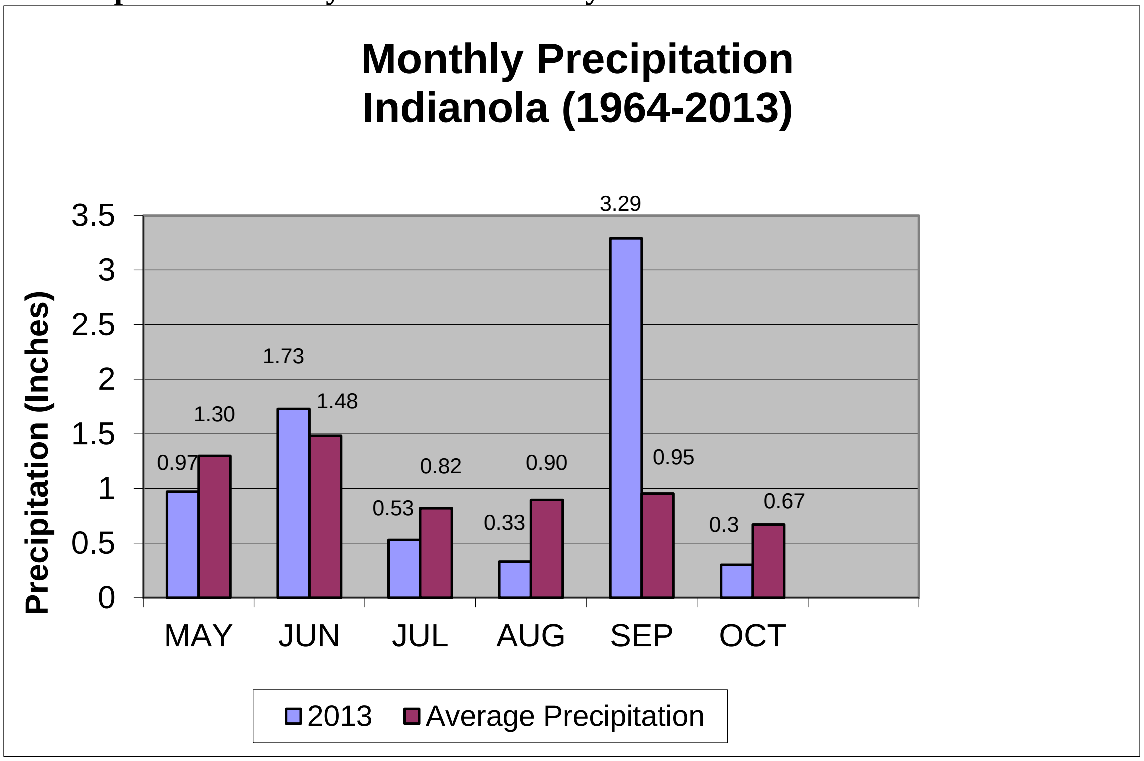

Figure 4.1(a) Observed and average precipitation at Indianola RAWS site, Fire Weather Zone 475.

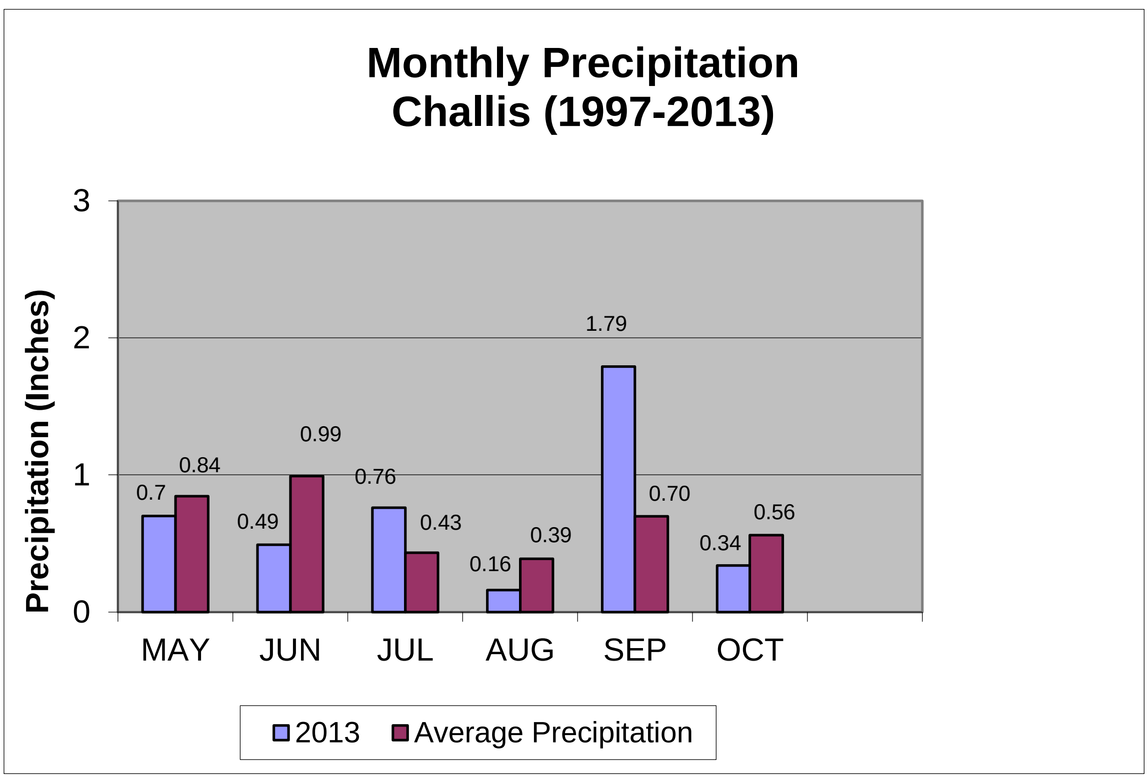

Figure 4.1(b) Observed and average precipitation at Challis RAWS site, Fire Weather Zone 476.

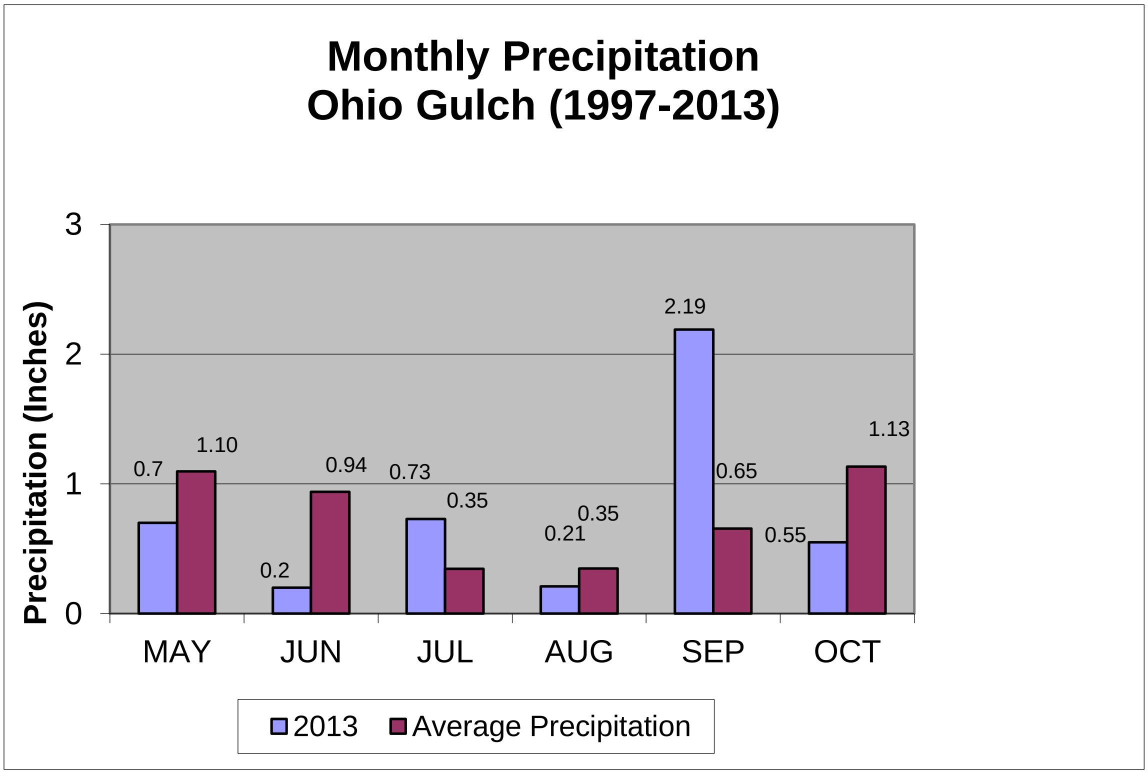

Figure 4.1(c) Observed and average precipitation at Ohio Gulch RAWS site, Fire Weather Zone 422.

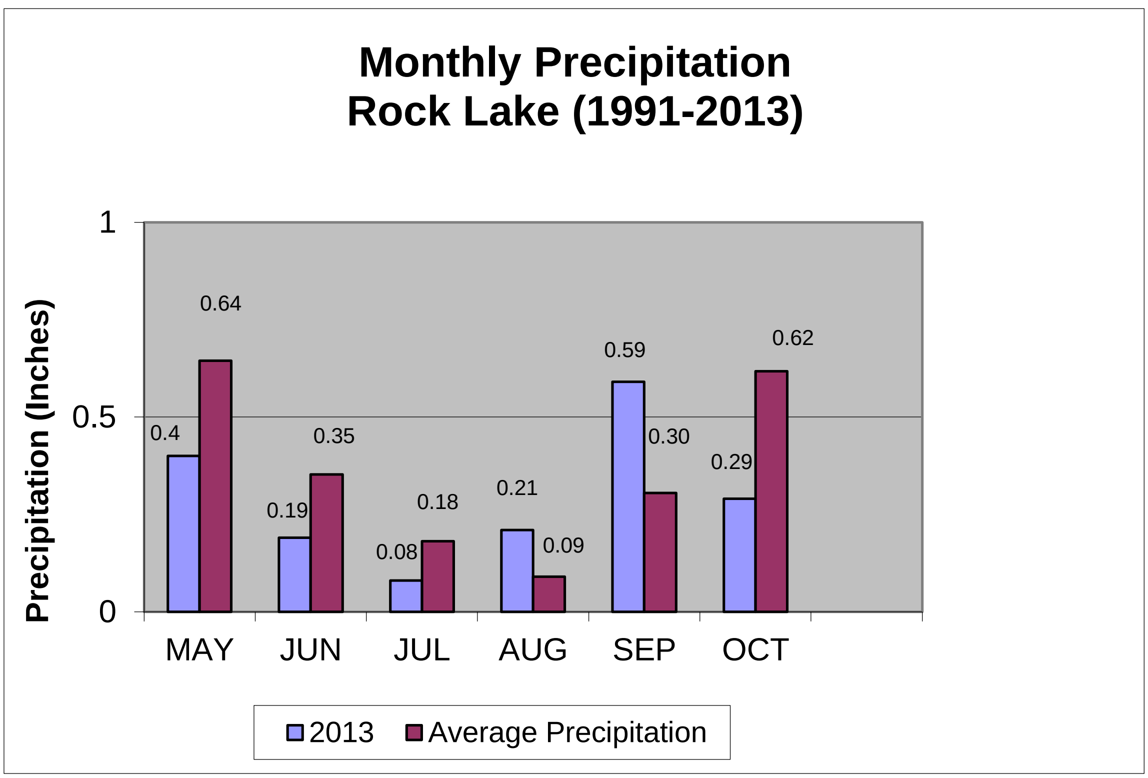

Figure 4.1(d) Observed and average precipitation at Rock Lake RAWS site, Fire Weather Zone 425.

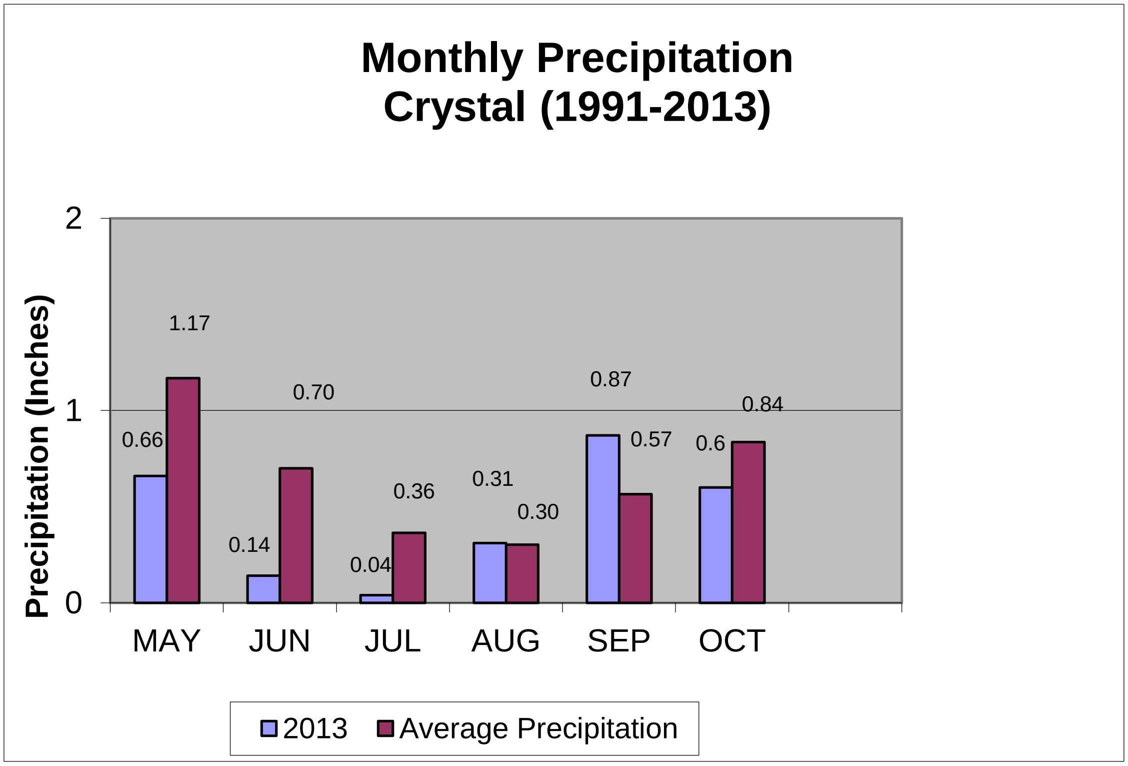

Figure 4.1(e) Observed and average precipitation at Crystal RAWS site, Fire Weather Zone 410.

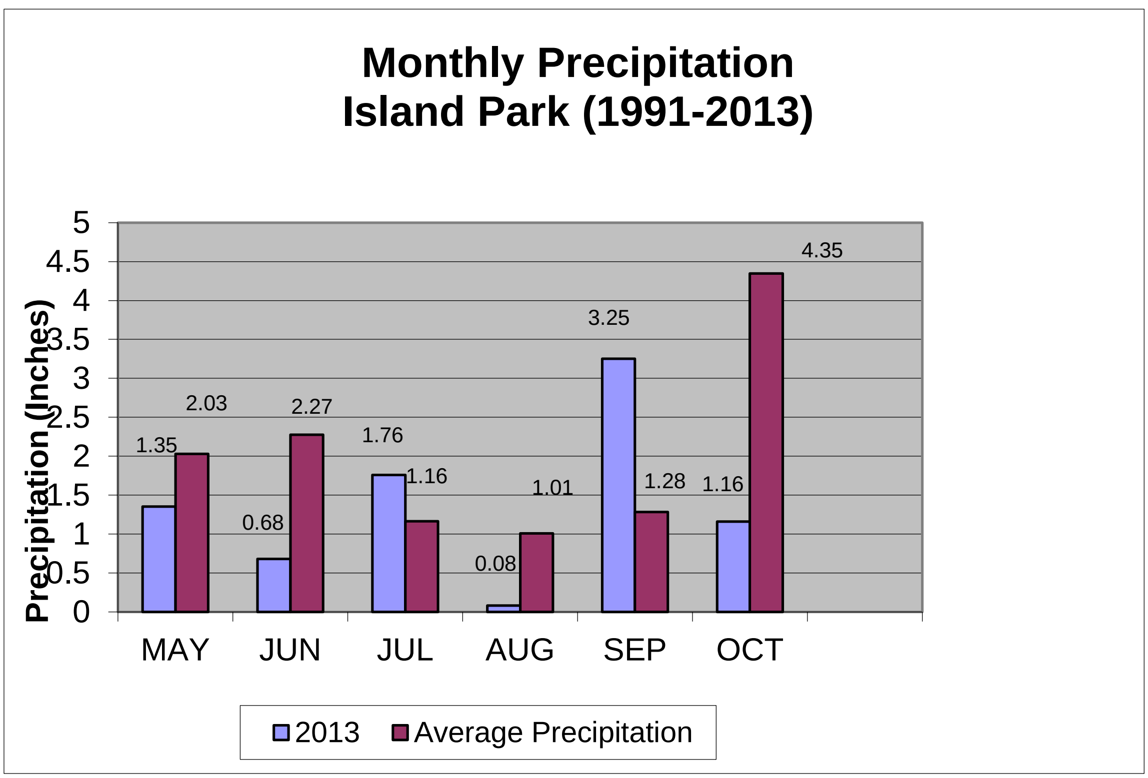

Figure 4.1(f) Observed and average precipitation at Island Park RAWS site, Fire Weather Zone 411.

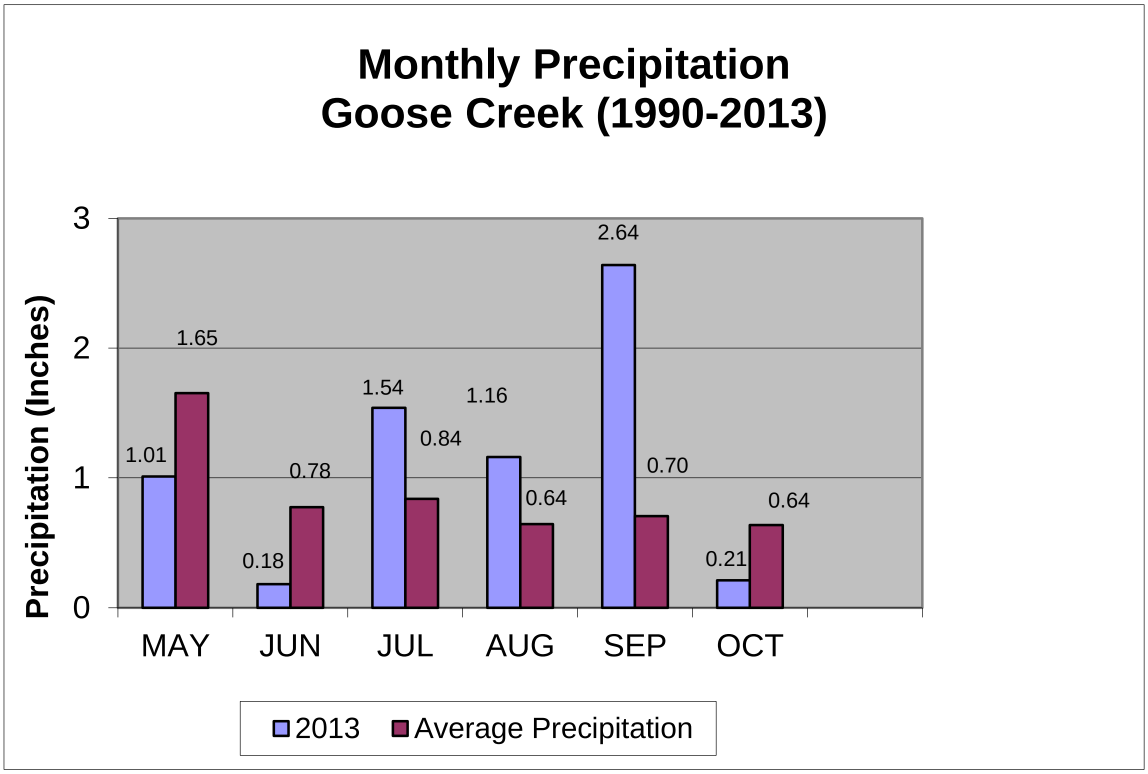

Figure 4.1(g) Observed and average precipitation at Goose Creek RAWS site, Fire Weather Zone 427.

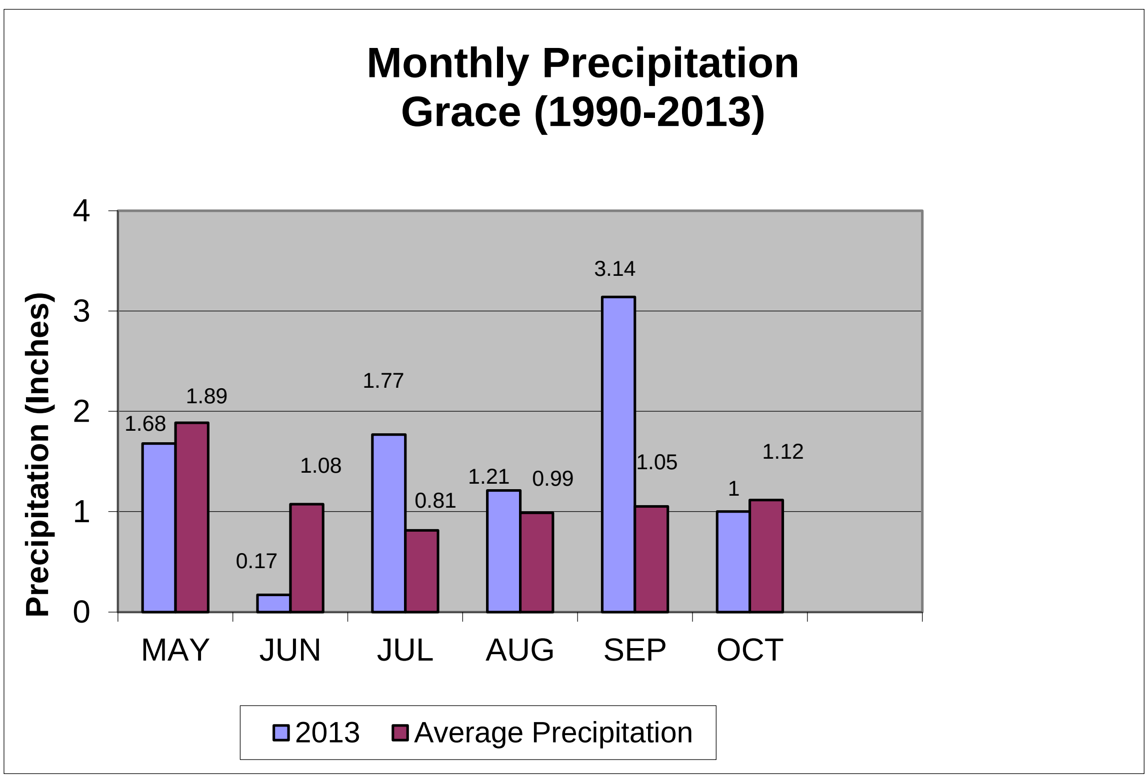

Figure 4.1(h) Observed and average precipitation at Grace RAWS site, Fire Weather Zone 413.

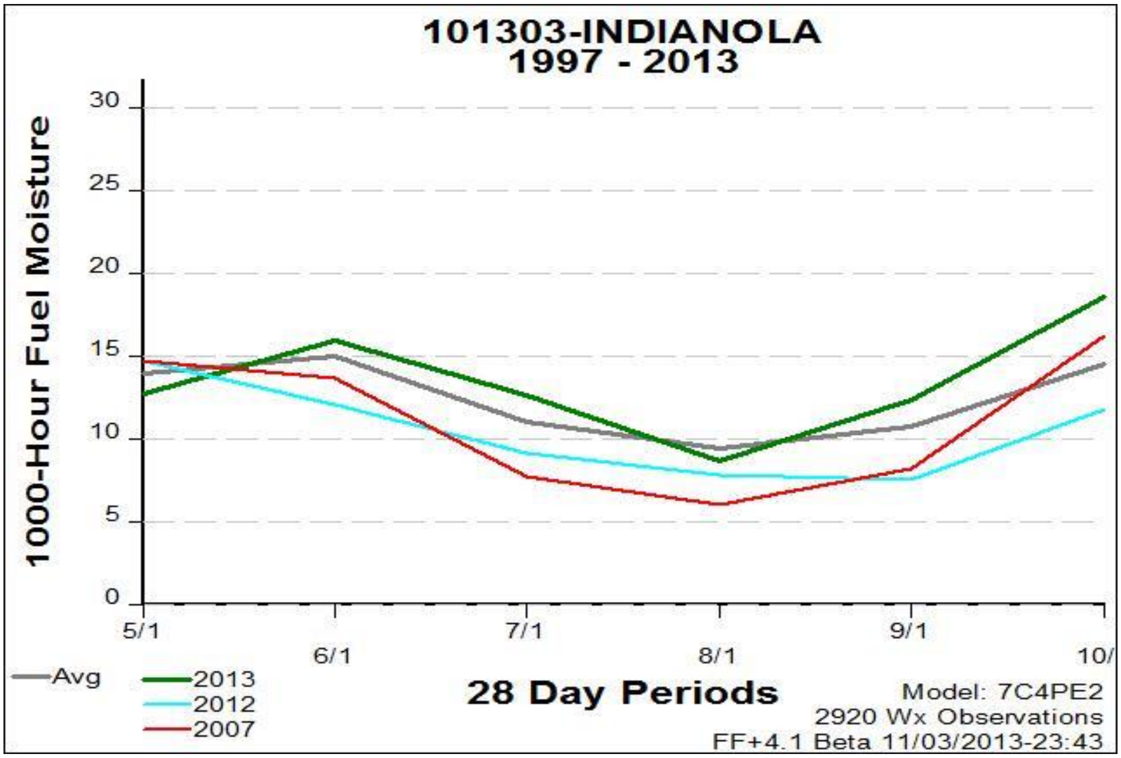

Figure 4.2(a) Observed and average 1000 Hour Fuel Moisture at Indianola RAWS site, Fire Weather Zone 475.

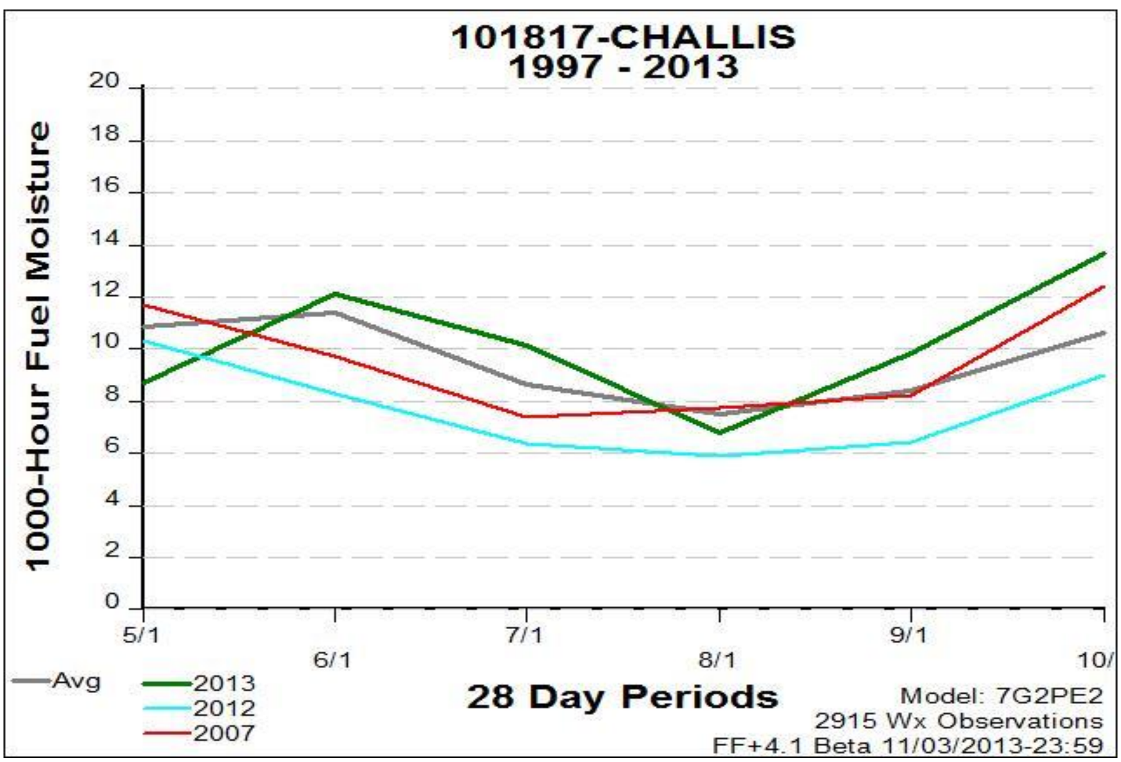

Figure 4.2(b) Observed and average 1000 Fuel Moisture at Challis RAWS site, Fire Weather Zone 476.

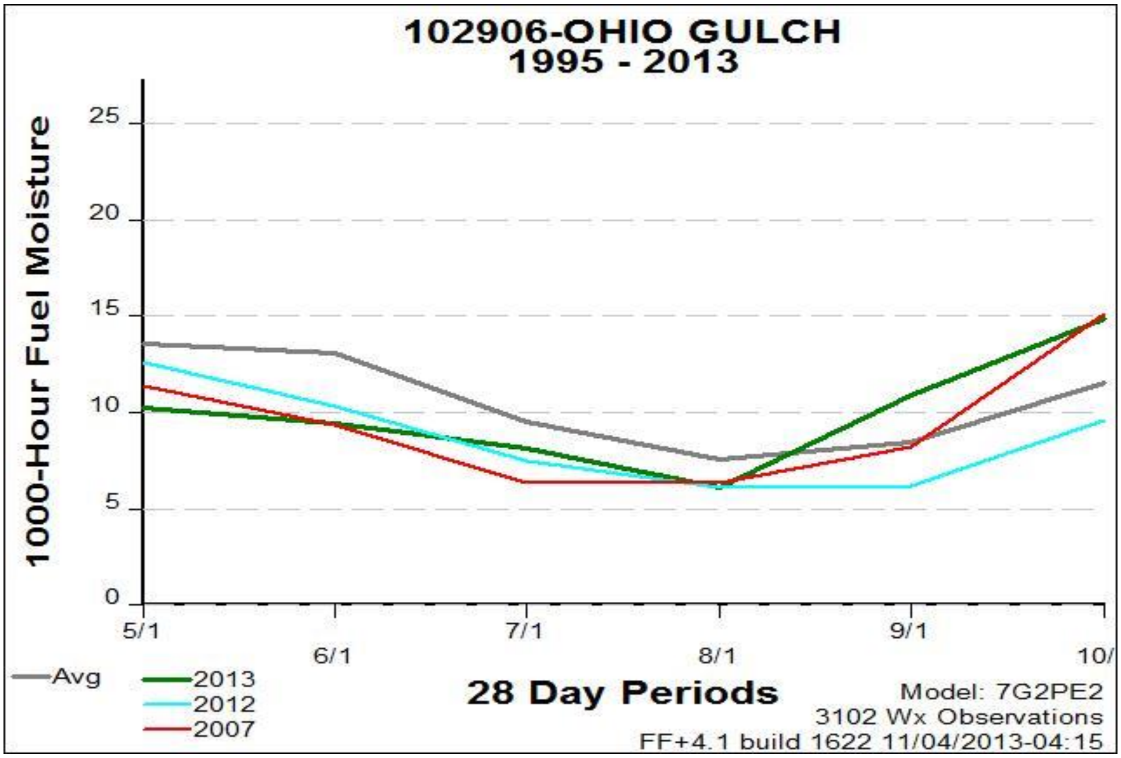

Figure 4.2(c) Observed and average 1000 Fuel Moisture at Ohio Gulch RAWS site, Fire Weather Zone 422.

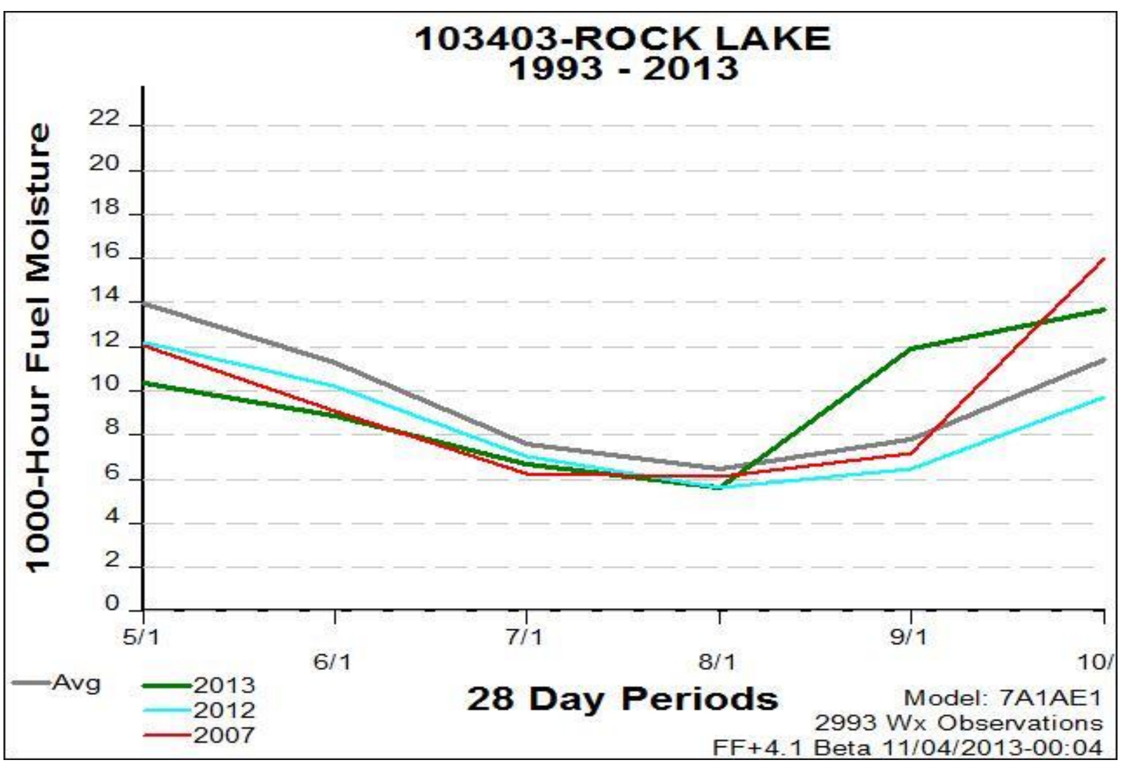

Figure 4.2(d) Observed and average 1000 Hour Fuel Moisture at Rock Lake RAWS site, Fire Weather Zone 425.

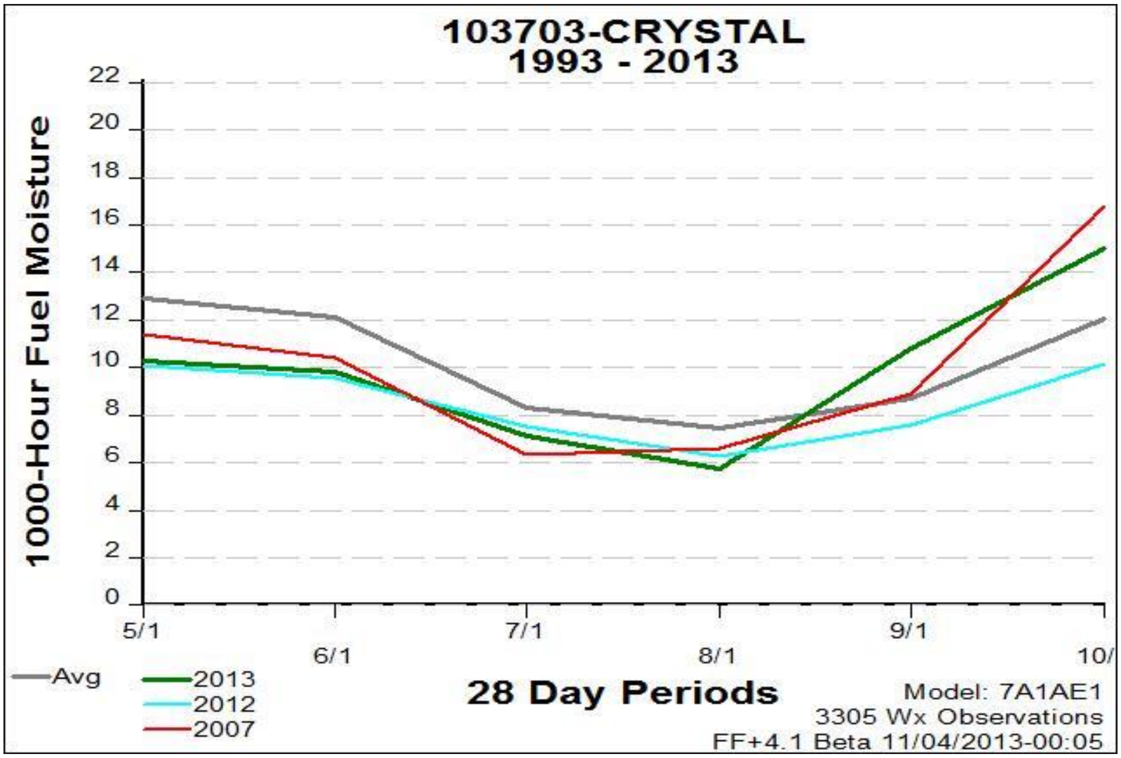

Figure 4.2(e) Observed and average 1000 Hour Fuel Moisture at Crystal RAWS site, Fire Weather Zone 410.

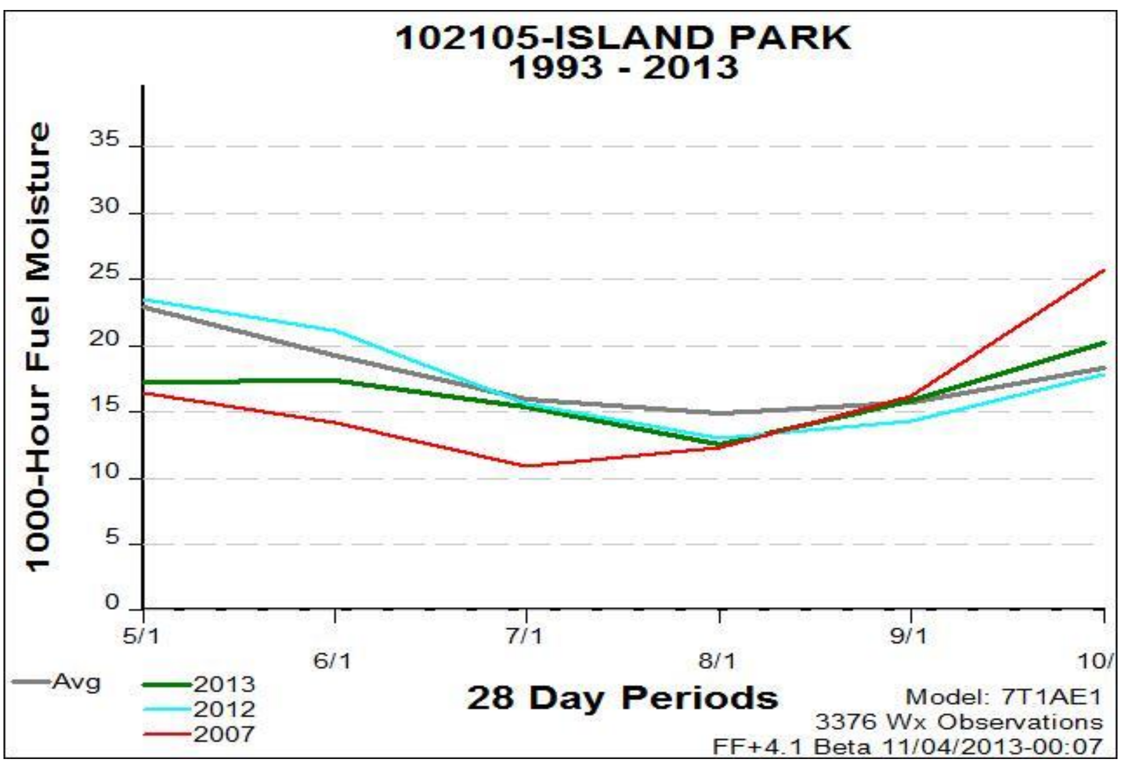

Figure 4.2(f) Observed and average 1000 Hour Fuel Moisture at Island Park RAWS site, Fire Weather Zone 411.

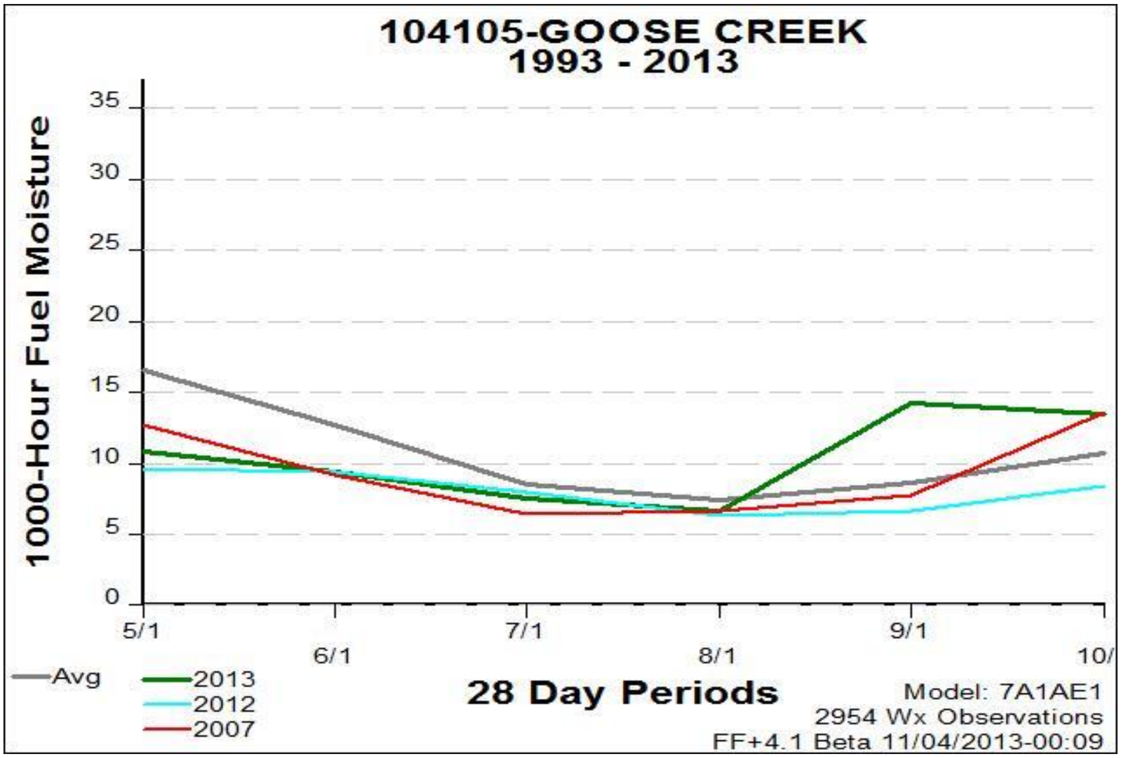

Figure 4.2(g) Observed and average 1000 Hour Fuel Moisture at Goose Creek RAWS site, Fire Weather Zone 427.

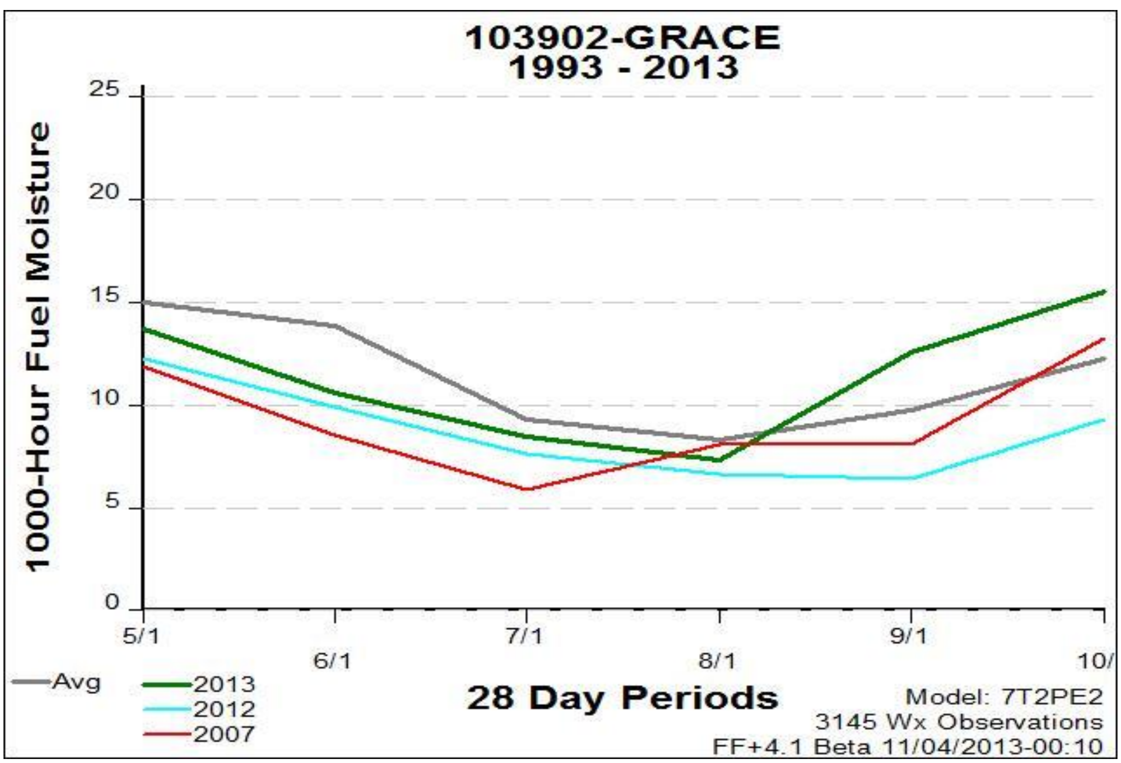

Figure 4.2(h) Observed and average 1000 Hour Fuel Moisture at Grace RAWS site, Fire Weather Zone 413.

5. Office Operations:

5.1 Red Flag Verification

1. Formal verification of Red Flag Warnings in Southeast Idaho began with the 2000 fire season and is now a permanent part of the fire weather program. Verification is based on current Red Flag Warning and Fire Weather Watch criteria that has been coordinated with local land management agencies and published in the Great Basin Annual Operating Plan for Fire Weather and Predictive Services. Current criteria for the Pocatello Fire Weather District are shown in paragraph 5.1.2 below.

Events considered "short fused" or having time lengths typically less than six to twelve hours (Dry Lightning) were split out from other events occurring over a longer time period, reference tables 5.1 (a-d) below.

2. Conditions that indicate a Red Flag Event:

Fire Weather Watches and Red Flag Warnings, are issued for conditions of very high or extreme fire danger (as determined by land management agencies) and dry fuels, in combination with one of the following:

a. Widely scattered or greater ($\geq$ 15% of aerial coverage) thunderstorm activity.

b. Winds gusts for any three or more hours $\geq$ 25 mph for Southeast Idaho Mountains, $\geq$ 30 mph for the Snake River Plain and relative humidity is $\leq$ 15 percent.

c. In the judgment of the forecaster, weather conditions will create a critical fire control situation. These conditions may include strong microburst winds, passage of a cold front or a strong wind shift.

Red Flag criteria are developed from a local knowledge of fuel types, terrain, weather conditions that are common or unusual to the area, historical fire behavior, and judgment of the local land management agencies. Because the criteria for issuing Red Flag products can vary from one district to another, these verification results are not necessarily comparable with other forecast offices.

3. Methodology:

Verification of Red Flag Warnings was conducted on a zone by zone basis. Example: If a warning for strong wind was issued for fire weather zones 409 and 410, but strong winds were observed only in zone 410, then this counts as two warnings, one that verified and one false alarm. Also, if strong winds were observed in zone 412, but no warning was issued, then this would be counted as one missed event.

Sources of verification included Remote Automated Weather Stations (RAWS), Meteorological Reporting Stations (METAR), lightning data; WSR-88D Doppler Weather Radar estimated precipitation, volunteer weather spotter information such as heavy rain events, and reports of observed fire behavior from personnel in the field.

Local MESONET reporting networks maintained by Idaho Department of Transportation and the Idaho National Laboratory were not used as a source of verification for wind events since there are differences in observing standards at these sites.

Statistical parameters were calculated as follows:

Probability of Detection	POD = a/(a+c)
Critical Success Index	CSI = a/(a+b+c)
False Alarm Rate	FAR = 1-[a/(a+b)]

where

a = the number of correct warnings (verified)
b = the number of incorrect warnings (not verified)
c = the number of events not warned

4. Sources of error:

Red Flag criteria for wind events in the Great Basin were modified based on interagency agreement set forth in the Great Basin Fire Weather Operating Plan for 2005 and continued without change for the 2006 and 2007 fire seasons. Beginning with the 2008 fire season, the distinction between wet and dry thunderstorms was eliminated from the Red Flag criteria owing to concerns of lightning strikes and fire ignition occurring outside the main thunderstorm rain shaft. A thunderstorm was previously considered "dry" if it produced little or no precipitation (< 0.10 inch). The mid-point of a forecast range serves as the break point for watch/warning issuance. This effectively adds an element of representativeness to the verification process. Therefore, any inference of trends from verification results must consider changes made to the established criteria for a Red Flag Event and verification procedures in past years. The Red Flag Event criteria and verification procedures also changed in 2002 and 2004 Please reference past issues of this Fire Weather Annual Report.

Forecaster skill level and confidence may be lower for peak wind gusts over sustained wind speed. Downward transport of momentum in the atmosphere, complex terrain, inversions of temperature lapse rate, variations in surface insolation owing to vegetative ground cover, reflectivity, absorption and transmissivity of the atmosphere, and the energy phase change of water in the atmosphere all impact the observed peak surface wind gust. Not all of these processes are sufficiently represented by available computer modeling and operational forecaster techniques.

Personal judgment was required to determine when lightning was more than an isolated event and significant in areal coverage.

Field observations of fire behavior may serve as an important indicator of Red Flag conditions. On rare occasion this may affect the best judgment of the forecaster and land management personnel. On days or in locations where there were no on-going fires this information was not available.

In paragraph 2c above, judgment of the forecaster and land management personnel is permitted to override the strict criteria of relative humidity and wind gusts. The general consensus is there is enough uncertainty in the fire environment (fuel, weather and topography) and this should remain a necessary and important element of the Red Flag criteria. This also requires a certain amount of judgment in the verification process.

Both RAWS and METAR stations report instantaneous wind gusts, but the observing standards for height of the wind sensor can vary.

On rare occasion the fuels were defined as critical at an elevation below that of existing RAWS and METAR stations.

Skill and lead-time vary with the type of event.

5. Decision Criteria

Wind – The number of available RAWS and METAR sites varied both with the area warned and location where fuels were defined as critical. Every attempt was made to judge the representativeness of wind conditions.

Lightning – Archived lightning data was used to determine verification. A good deal of judgment was needed to determine if the observed lightning was more than an isolated event. Some thunderstorms are more efficient lightning producers than others.

Wet versus dry thunderstorms – this element was removed from the Red Flag Criteria beginning with the 2008 fire season. The number of reported fire starts is not a reliable indicator since lightning strikes can occur outside the thunderstorm precipitation shield striking drier fuels and a single thunderstorm can be long lived producing numerous strikes over some distance.

Other – Reports of observed fire behavior from personnel in the field continue to be useful when dealing with long-term drought conditions and days of reported low relative humidity. If sustained fire runs are observed but available observations do not necessarily support warning criteria, the judgment would likely fall on the side of safety of life and property.

6. Results:

Red Flag Warning criteria were met on a total of 25 different days during this fire season in the Pocatello Fire Weather District. Strong gusty winds and low relative humidity were a factor on 12 of these days; thunderstorms and lightning activity were a significant factor on 13 of these days. There were 6 events (zones) occurring on 6 different days when Red Flag Warning criteria were met without a warning in effect.

	May	June	July	August	September	October	Total
Total # watches	0	0	5	33	0	0	38
Total # of warnings	0	0	22	80	0	0	102
Number warnings that were preceded by a watch	0	0	5	30	0	0	35
Warnings verified (a)	0	0	15	58	0	0	73
Warnings not verified (b)	0	0	7	22	0	0	29
Events not warned (c)	0	0	0	6	0	0	6

Table 5.1(a). Combined synoptic (long term) and short fused Red Flag event products issued in the WFO Pocatello Fire Weather District during the 2013 season.

	May	June	July	August	September	October	Total
Total # watches	0	0	3	21	0	0	24
Total # of warnings	0	0	11	31	0	0	42
Number warnings preceded by a watch	0	0	3	18	0	0	21
Warnings verified (a)	0	0	5	25	0	0	30
Warnings not verified (b)	0	0	6	6	0	0	12
Events not warned (c)	0	0	0	5	0	0	5

Table 5.1(b). Synoptic scale Red Flag event products issued in the WFO Pocatello Fire Weather District during the 2013 season. Example cold fronts, low relative humidity, strong pressure gradient related winds.

	May	June	July	August	September	October	Total
Total # of watches	0	0	2	12	0	0	14
Total # of warnings	0	0	11	49	0	0	60
Number warnings preceded by a watch	0	0	2	12	0	0	14
Warnings verified (a)	0	0	10	33	0	0	43
Warnings not verified (b)	0	0	1	16	0	0	17
Events not warned (c)	0	0	0	1	0	0	1

Table 5.1(c). Short fused Red Flag event products issued in the WFO Pocatello Fire Weather District during the 2013 season. Example: lightning events and strong micro burst winds.

Red Flag verification resulted in the following:

	Synoptic Events	Short Fused Events (Lightning)	All Events
Probability of detection POD =	0.86	0.98	0.92
Critical success index CSI =	0.64	0.70	0.68
False alarm rate FAR =	0.29	0.28	0.28
Average lead time for Watches =			38 hrs. 53 min
Average lead time for Warnings =	8 hrs. 12 min.	15 hrs. 53 min.	12 hrs. 29 min

Table 5.1(d). Combined synoptic (long term) and short fused Red Flag event products issued in the WFO Pocatello Fire Weather District during the 2013 season.

7. Implications:

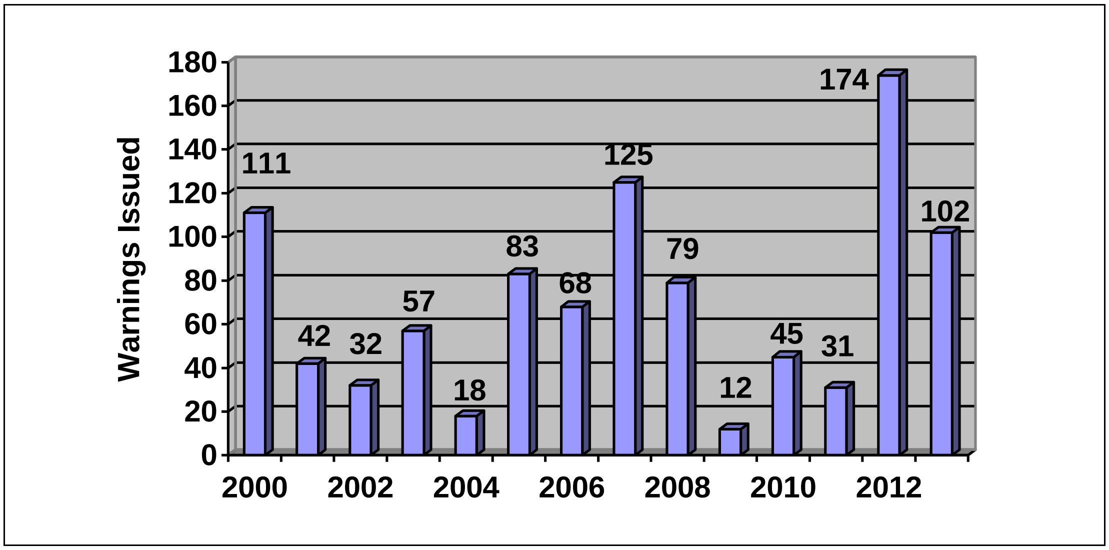

Figure 5.2 Historical Red Flag Warnings in Southeast Idaho; based on one warning per fire weather zone meeting criteria. In dry years the number of zones with "critical" fuels generally increases, and so does the number of warnings. The Red Flag criteria have changed several times since the 2000 fire season and are not necessarily comparable.

The 2013 fire season in Southeast Idaho was shorter than recent years owing to live fuel moistures remaining higher at the beginning of summer. For Red Flag Warning purposes, fuels were not determined to be critical in the Middle Snake River Valley until July 9th, and for the Upper Snake River Valley, August 13th. In late August and early September, much higher relative humidity and heavier rain fall associated with thunderstorms served to mitigate fuel conditions. The Weather Forecast Office in Pocatello achieved a probability of detection of 0.92 but this was offset by a false alarm rate of 0.28 this year.

5.2 Spot Forecasts prepared by WFO Pocatello:

Wildfires	160
Prescribed Fires	121
HAZMAT	0
Backup	0
Exercise	0
Search & Rescue	3
Total	284

Verbal Phone Briefings	
For fire support	56
Search & Rescue	0
Emergency management	13
Exercise	0
Total	69

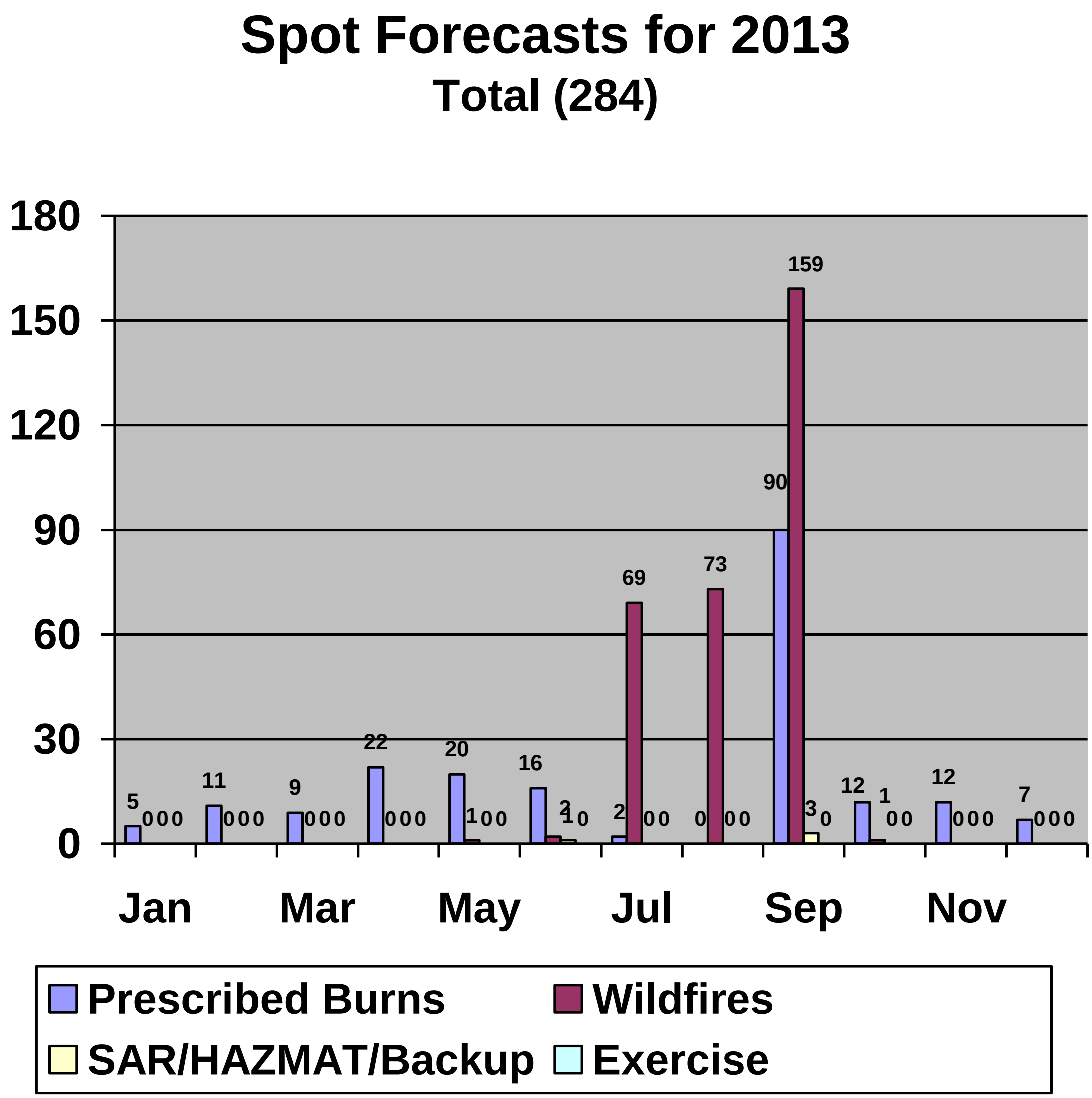

Figure 5.3(a) Spot Forecasts prepared by the Pocatello Fire Weather District during the 2013 fire season.

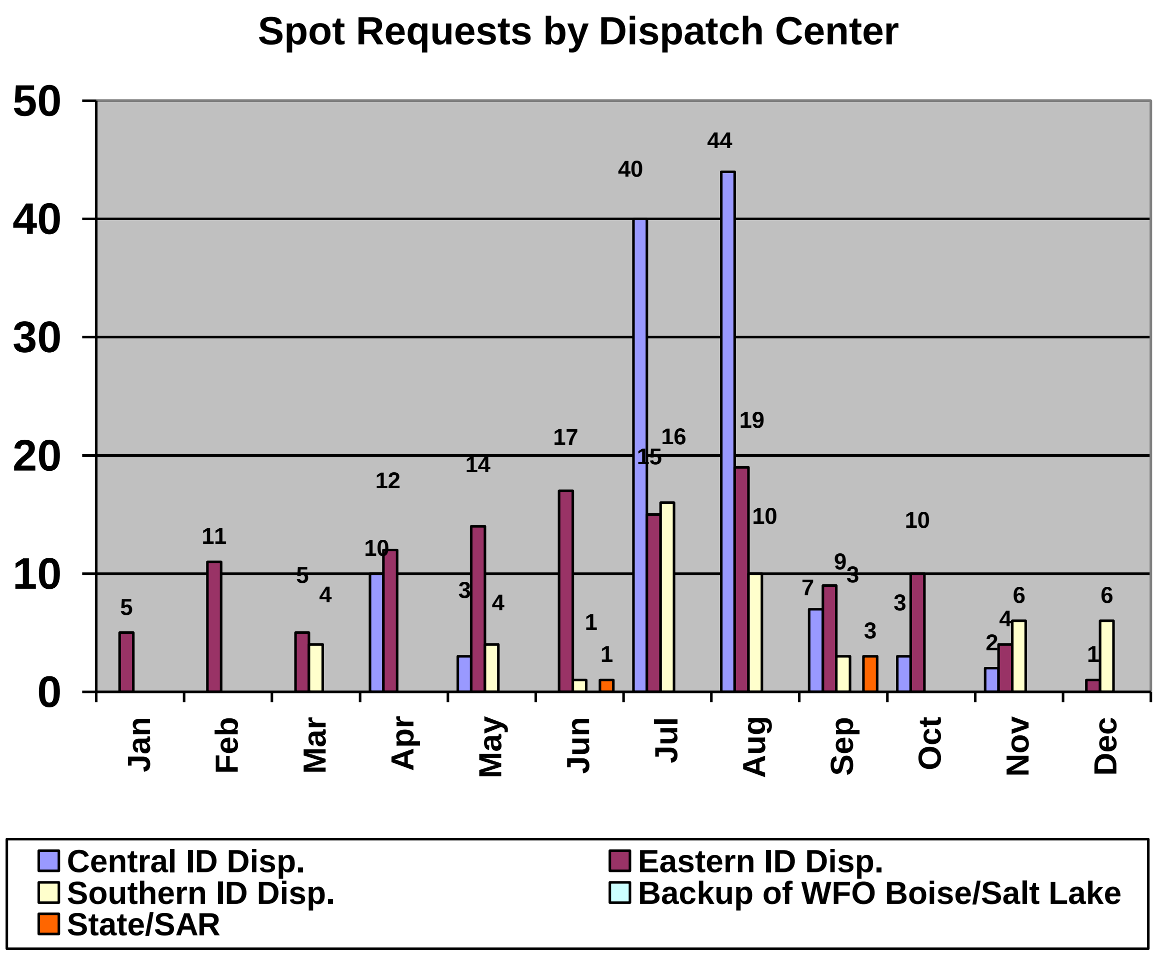

Figure 5.3(b) Spot Forecasts requested by dispatch area during the 2013 fire season in Southeast Idaho.

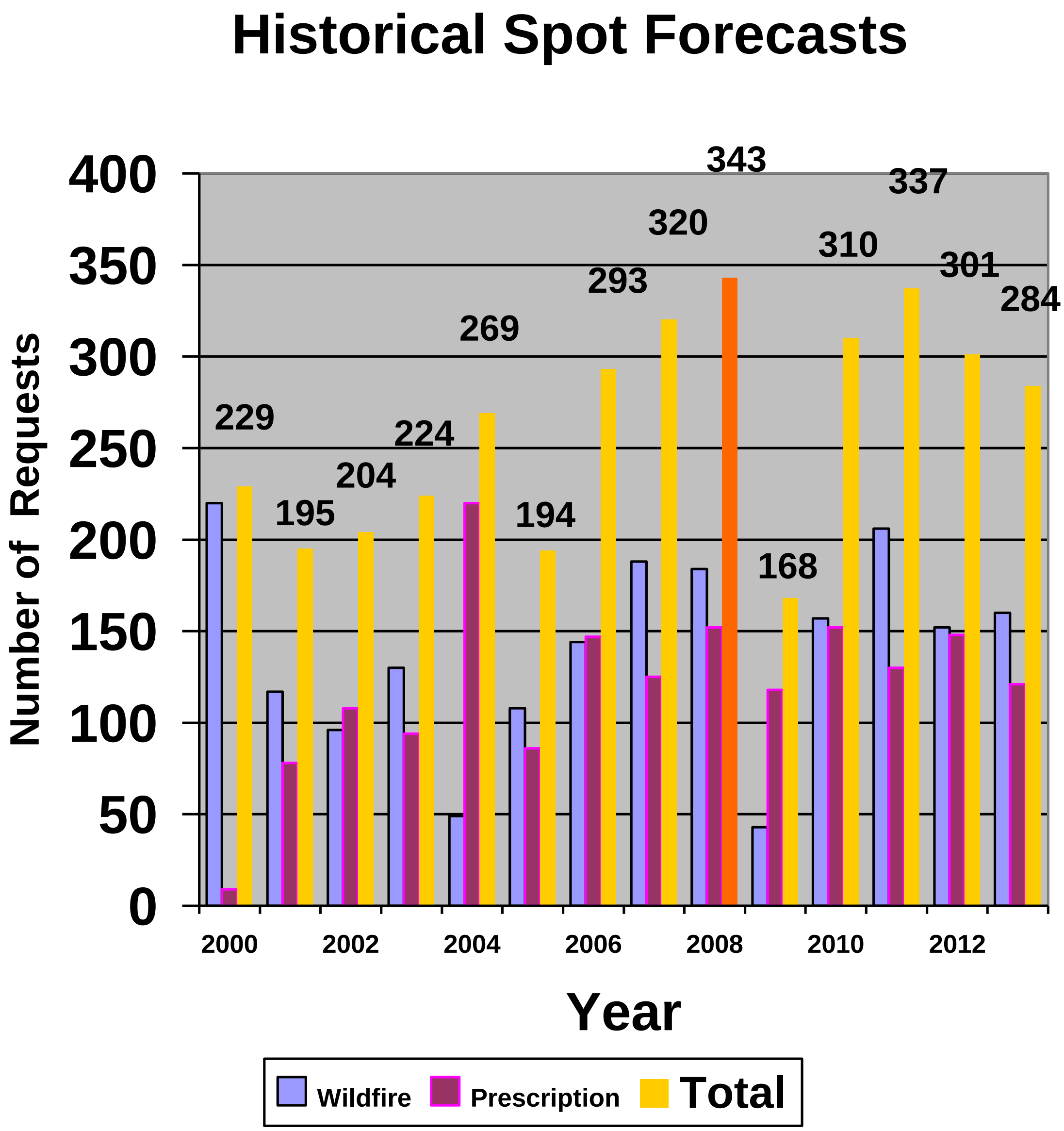

Figure 5.4 Historical trends in Spot Forecast requests for the Pocatello Fire Weather District. There were 284 SPOT forecasts provided in 2013. The record for the National Weather Service Office in Pocatello is 343 SPOT forecasts in 2008.

5.3 Fire Dispatches Supported by WFO Pocatello: There were four IMET dispatches this fire season resulting in 26 man days served out of the office.

Date	*Dispatch Location*	*Type I Incident Meteorologist*
July 24 to July 27, 2013	Fairfield Fire Shoshone NF 6SW Lander, Wyoming	Bob Survick
July 27 to August 03, 2013	Moose Meadows Fire Beaverhead-Deerlodge NF 18SW Philipsburg, Montana	Bob Survick
August 10 to August 17, 2013	Pony Complex Boise BLM Near Mountain Home, Idaho	Jack Messick
August 17 to August 24, 2013	McCan Fire Twin Falls BLM Near Featherville, Idaho	Jack Messick

Table 5.3a Type I Incident Meteorologist Dispatches by WFO Pocatello (in support of onsite IMT operations).

Date	*Dispatch Location*	*Type II and III Incident Meteorologist*
March 28, 2013	Pacificorp Dam Break Table top exercise Ashton, Idaho	Rick Dittmann
April 9-11, 2013	Idaho BHS HAZMAT Exercise Idaho Falls, Idaho	Vern Preston, Dean Hazen, and Corey Loveland
April 9, 2013	USBOR Dam Break table top exercise.	Corey Loveland
May 9, 2013	Pacificorp Dam Break Functional Exercise	Staff

May 18, 2013	Wildland Fire full scale Functional exercise Blackfoot, Idaho	John Keys
May 22, 2013	Pocatello Regional Airport Full Scale Exercise	Gary Wicklund
August 28 to September 7, 2013	Eastern Idaho State Fair, Blackfoot, Idaho Daily Decision Support Briefings	Various staff

Table 5.3b Type II Incident Meteorologist Dispatches or local support by WFO Pocatello (at an Emergency Operations Center, Area Command, or Joint Field Office location).

5.4 Training: WFO Pocatello staff participated in the following training courses during the 2012 season.

Forecaster	Training situation
Bob Survick and Jack Messick	RT-130, BLM Pocatello Field Office, April 17, 2013.
Bob Survick and Jack Messick	Virtual IMET Workshop, March 18-21, 2013.
Bob Survick	Pre-Fire Season Station Meeting for all forecasters, National Weather Service Office, Pocatello, Idaho May 21, 2013.
Mike Huston	Instructor S-290 Intermediate Wildland Fire Behavior, May 20-21, 2013, Central Idaho Interagency Fire Center, Salmon, Idaho.
Bob Survick Jack Messick	CPR First Aide and AED Training, at WFO Pocatello, July 1, 2013.
Bob Survick Jack Messick	IMET Google Sites Training/Teleconference, July 11, 2013.

5.5 Field Visits: The staff at WFO Pocatello participated in 48 interagency meetings this year.

Location	Dates
Governors Board for Transportation Vern Preston	January 16, 2013
Gate City Interagency Fire Front Meetings, Pocatello, Idaho	Monthly
Local Emergency Planning Committee Hydrology and Fire Weather Outlook Various Counties and dates Vern Preston, Corey Loveland	19 meetings
Ground Hog Day Chili Cook-off Southeastern District Health Office Pocatello, Idaho	February1, 2013
Idaho Emergency Manager State Workshop	February 6, 2013

Shoshone Bannock Tribes Liaison Meeting Dean Hazen, Vern Preston	March 5, 2013
South Central Idaho Interagency Coop/FMO Meeting South Idaho Interagency Fire Center Shoshone, Idaho Dean Hazen and Vern Preston	March 13, 2013
Craters of the Moon NM Liaison Meeting Dean Hazen, Vern Preston	March 14, 2013
Bureau Homeland Security State Fire Planning Meeting Rick Dittmann and Dean Hazen	May 8, 2013
Spring Operations Meeting Eastern Idaho Interagency Fire Center Idaho Falls, Idaho Vern Preston	May 14, 2013
Decision Support Services Scout Encampment Firth, Idaho Rick Dittmann, Vern Preston	June 5, 2013
Decision Support Services Cub Scout Encampment Chubbuck, Idaho Vern Preston	June 14 and 17, 2013
Decision Support Services Scout Encampment Firth, Idaho Vern Preston	June 18, 2013
Decision Support Services Cub Scout Encampment Chubbuck, Idaho Vern Preston	June 19-20, 2013

Decision Support Services Scout Encampment Firth, Idaho Rick Dittmann, Vern Preston, Dan Valle	June 25, 2013
Lodgepole Fire MIC Rick Dittmann and Met Intern Elizibeth Padian	August 8, 2013
Eastern Great Basin Predictive Services And WFO Pocatello Post season meeting for fuels and Red Flag Changes for 2014 Shelby Law, Rick Dittmann, and various National Weather Service staff members.	November 4, 2013

5.6 Support to IMETs dispatched to the WFO Pocatello area of responsibility:

Patrick Gilchrist, Glasgow, Montana, Lodgepole Fire near Challis, Idaho July 24 to August 7.

Rick Davis, Tampa Bay, FL, Lodgepole Fire near Challis, Idaho August 5 to August xx, 2013.

Todd Barron (T), WFO Tampa Bay, Lodgepole Fire, near Challis, Idaho July 27 to August 11, 2013.

Terrence Lebo (T), Wilmington, NC, Lodgepole Fire, near Challis, Idaho August 9 to August 17, 2013.

Mark Struthwolf, Salt Lake City, the State Fire, south of Malad, August 11 to August 20, 2013.

Jeremey Wolf, Spokane, Washington, Beaver Creek Fire near Sun Valley, 8/11-25/2013.

Shawn Jacobs (T), Scotts Bluff, Nebraska, Beaver Creek Fire near Sun Valley, 8/17-30/2013.

Joe Goudsward, Little Rock, Arkansas, Beaver Creek Fire near Sun Valley, 8/24-31/2013.